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THE
AMERICAN
AGRICULTURIST.

FOR THE
Farm, Garden, and Household.

"Agriculture is the most Healthful, the most Useful, the most Noble Employment of Man,"—WASHINGTON.

VOLUME THIRTY-TWO—FOR THE YEAR 1873.

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The stars (*) in the following Index show where engravings occur. Articles referring directly or indirectly to *Bees, Cattle, Insects, Manures, Trees, Weeds, etc.*, will be found indexed under these general heads.

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AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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VOLUME XXXII.—No. 1.

NEW YORK, JANUARY, 1873.

NEW SERIES—No. 312.



ROUGHENING THE SHOES.—Drawn and Engraved for the American Agriculturist.

The scene depicted by our artist in the above engraving needs no introduction. Roughening horses' shoes at this season is so common a practice, that every one possessing a horse should understand what it is. At the same time, there are many horse-owners who neglect it. Such neglect is unwise, costly, and cruel. Severe accidents result from driving horses on slippery roads with smooth shoes. Horses suffer from the greatest terror when traveling such roads with heavy loads. Their instinct teaches them that their footing is unsafe, and the fear and anxiety they experience when so exposed is painful to witness. They are unwilling to proceed, and punishment is often thoughtlessly inflicted on the frightened beast, who is wiser than his owner in foreseeing the

danger. Many injuries to the feet and legs are occasioned by the frantic attempts of the horse to preserve his precarious footing, which result in such complaints as spavins, sprains, broken knees, ring-bones, curbs, wind-galls, and not at all uncommonly the secondary affection of the muscles of the shoulder called sweeney is thus occasioned. It is therefore putting the case quite mildly when we say this neglect is both costly and cruel. Roughening, to be economical, should be done in the best manner. The toe-calks should be of hard steel. If of iron, they wear out very quickly. Care should be taken that the hind-calks are kept of even length with the toe-calks, so that the balance of the foot is



not destroyed, and the weight thus thrown unevenly on the sinews of the leg and the bones of the foot. Neglect in this often causes lameness. Finally, the greatest care should be exercised in preventing horses thus armed from kicking each other. Play in the barn-yard should not be allowed, for fear of injury.

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		Sun. rise.	Set.	Mon. sets.	Sun. rise.	Set.	Mon. sets.	Sun. rise.	Set.	Mon. sets.
1	W	7:30	4:38	7:38	7:24	4:44	7:42	7:19	4:49	7:46
2	T	7:30	4:39	7:38	7:24	4:45	7:42	7:19	4:50	7:46
3	F	7:30	4:40	10:12	7:24	4:46	10:11	7:19	4:51	10:16
4	M	7:30	4:41	11:25	7:24	4:47	11:25	7:19	4:52	11:25
5	T	7:30	4:42	morn	7:24	4:48	morn	7:19	4:53	morn
6	F	7:30	4:43	0:34	7:24	4:49	0:33	7:19	4:54	0:32
7	M	7:30	4:44	1:43	7:24	4:50	1:41	7:19	4:55	1:39
8	T	7:30	4:45	2:49	7:24	4:51	2:45	7:19	4:56	2:47
9	F	7:30	4:46	3:56	7:24	4:52	3:51	7:19	4:57	3:47
10	M	7:29	4:47	4:58	7:24	4:53	4:53	7:19	4:58	4:47
11	T	7:29	4:48	6:1	7:23	4:54	5:55	7:18	4:59	5:49
12	F	7:28	4:49	rises	7:23	4:55	rises	7:18	5:0	rises
13	M	7:28	4:50	4:46	7:23	4:56	4:52	7:18	5:01	4:58
14	T	7:28	4:51	5:46	7:23	4:57	5:51	7:18	5:02	5:57
15	F	7:27	4:52	6:47	7:23	4:58	6:51	7:18	5:03	6:56
16	M	7:27	4:53	7:47	7:22	4:59	7:51	7:17	5:04	7:54
17	T	7:26	4:54	8:47	7:21	5:0	8:49	7:16	5:05	8:51
18	F	7:26	4:55	9:47	7:21	5:1	9:48	7:16	5:06	9:49
19	M	7:25	4:56	10:48	7:20	5:2	10:48	7:15	5:07	10:48
20	T	7:25	4:57	11:50	7:19	5:3	11:49	7:15	5:08	11:47
21	F	7:25	4:58	morn	7:18	5:4	morn	7:15	5:09	morn
22	M	7:25	4:59	0:56	7:18	5:5	0:54	7:15	5:10	0:53
23	T	7:25	5:0	2:4	7:17	5:6	2:0	7:15	5:11	1:57
24	F	7:25	5:1	3:17	7:16	5:7	3:12	7:15	5:12	3:8
25	M	7:25	5:2	4:30	7:15	5:8	4:11	7:15	5:13	4:8
26	T	7:25	5:3	5:41	7:15	5:9	5:35	7:15	5:14	5:28
27	F	7:25	5:4	6:45	7:15	5:10	6:39	7:15	5:15	6:32
28	M	7:25	5:5	7:50	7:15	5:11	7:43	7:15	5:16	7:37
29	T	7:25	5:6	8:54	7:15	5:12	8:47	7:15	5:17	8:41
30	F	7:25	5:7	9:59	7:15	5:13	9:51	7:15	5:18	9:45
31	M	7:25	5:8	11:03	7:15	5:14	10:55	7:15	5:19	10:49

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.	CHICAGO.
1st Quart.	5:43 ev.	4:21 ev.	4:19 ev.	4:7 ev.	3:37 ev.
Full M'n	11:33 m.	11:27 m.	11:15 m.	11:3 m.	10:33 m.
3d Quart.	3:47 ev.	3:35 ev.	3:23 ev.	3:11 ev.	2:41 ev.
New M'n	0:43 ev.	0:31 ev.	0:19 ev.	0:7 ev.	11:37 m.

AMERICAN AGRICULTURIST.

NEW YORK, JANUARY, 1873.

Thankful for the Past; hopeful for the Future. This is our feeling in commencing the first number of the new volume of the *American Agriculturist* for the year 1873.

There is at the present time a wide-spread dissatisfaction among farmers in regard to the condition and prospects of our agriculture. High wages, exorbitant freights, and low prices for our products have a depressing effect. Many farmers think we shall never see good times again. They are proposing all sorts of remedies—some good and some bad. What we propose to do, and to recommend the farmer readers of the *American Agriculturist* to do, is to stick to the farm. The darkest hour of the night is often just before daybreak. Agriculture will be as profitable in the future as in the past—and, we believe, more so. Let us keep at work. Let those of us who are poor cut down expenses as much as possible, buying nothing we can get along without. Let us take good care of the stock this winter, and get everything ready for a vigorous push at farm work in the spring. Now, at the commencement of a New Year, let us make up our minds to be better men and better farmers. We all ought to know our weak points. There is occasionally a farmer who is so excessively systematic and orderly that he does little else than "putter." He has no disposition to undertake a big job and put it through. Others like nothing but steady work. They would rather build a fence round a twenty-acre lot than stop to pick up a few rails that have blown off. A good farmer must have both dispositions. He must push forward the large jobs and attend to the little ones at the same time. He must be systematic and orderly. In short, he must think as well as work.

Hints about Work.

Keep a Diary, or let some member of the family keep it for you. Write down every night the work that has been done during the day, the state of the weather, and any facts in regard to the stock, etc., that ought to be recorded. It is very little trouble,

and is exceedingly useful—and the longer it is kept the more interesting it becomes.

Keep Accounts.—It is astonishing how many farmers there are who keep no regular account of their receipts and expenses. If you have hitherto neglected this matter, neglect it no longer.

Make an Inventory of everything you have on the farm, its condition, and value.

Pay Old Debts, and make as few new ones as possible. Collect what is owing you. Keep all your pecuniary matters straight, and know exactly what you owe and what property you have.

Look to your Insurance, and see that your policy covers all your property. It sometimes happens that grain is insured in one barn and not in another, and so with implements, harness, carriages, machines, wool, etc. Look into the matter.

Make the House Comfortable.—See that the windows are tight and the doors fit close, and that the cold air does not rush in between the floor and the base-board. If you do not know how to remedy these matters, ask a carpenter. Make all the rooms comfortable, and occupy them. It is a foolish thing to spend a good deal of money in building a fine house and then live only in the kitchen.

Wood.—See that the wood-house is liberally furnished with wood, and that the wood-boxes in the house are never empty, and kindling is handy.

Coal.—Do not put this in a scattered heap on the cellar-floor, but provide a large box or bin, with a door on one side that slides up and down, but which does not reach the bottom within eight or ten inches. From this hole the coal can be easily shoveled into the scuttle. The sliding door should be large enough for a person to pass into the bin when the coal is so nearly exhausted that it can not be reached from the hole.

Ashes.—If you do not wish to burn up, provide in some convenient place a brick or stone ash-pit, or an old potash-kettle may be used temporarily. Wood-ashes are much more dangerous than coal-ashes. When apparently quite cold, there may be a few charred pieces of wood on fire that only need air and contact with wood to burn up the premises.

Icy Walks around the house and out-buildings should be sprinkled with coal-ashes. Sprinkle a little salt on the slippery door-steps, etc.

Clear the Paths of Snow.—Men inclined to procrastinate wait until the storm is over, for fear that if they sweep off the snow it will blow in again! They like to walk about in the snow. By and by, some days or weeks after the storm is over, they will spend hours in doing what a little promptness would have enabled them to do in minutes. Clear off the snow at once, while it is still falling if need be. It will save labor in the end, and you can get about with ease and comfort.

In the Barns, keep everything in its place. Sweep out frequently. Sort over old iron, and sell all pieces of broken castings, worn-out plow-points, etc. Horseshoes, old bolts, or any pieces of wrought-iron that may sometimes be useful, should be sorted and placed where you can find them when wanted.

Brand all the Tools, and mend and mark the bags. Provide a place for them, and keep them there.

Much of the Profit and Pleasure of farming depends on attention to these little matters. But we must stop here. This is merely preparatory. It is getting ready for work; but we may and should have regular, steady work at the same time. The trouble with many is that when actively engaged with regular work they fail to keep things in order.

Write Down all you want to Do, and you will not say that there is a lack of profitable work for the winter. We do not say that it is advisable to hire much help in winter. That depends on circumstances. You and such men and boys as you have should be kept fully and usefully employed.

The "January Thaw," if we have one, should be improved in getting ready for another long spell of frost. Winter came on so suddenly, that many things had to be left undone that we had intended to do

in preparation for winter. There may be some that can yet be done should we have a short thaw.

The Cellar should be thoroughly ventilated whenever the temperature outside is above the freezing point. This is absolutely necessary for the health of the family. The fruit and vegetables will also keep better. It is very convenient to have a thermometer hanging in the cellar, and whenever the temperature rises above 45°, a door or window, or both, may be opened, even on the coldest days, for a few minutes, provided the stream of cold air does not fall directly on anything easily affected by frost. How low you may safely reduce the temperature in the cellar depends on its construction. If it is "a warm cellar," it will do no harm to keep the door and windows open until the temperature of the cellar is down to within a few degrees of freezing; but if the cellar is at all liable to freeze in cold weather, it will not be safe to reduce the temperature so low, because if a very cold, windy night should follow the potatoes might be frozen. Should there be danger of this, a kettleful or two of boiling water sprinkled about the cellar floor before going to bed will do much to prevent frost. Water in freezing gives out heat. And we have had our cistern in the cellar freeze over an inch thick, while potatoes in the same cellar were not injured.

Apples should be examined, and those commencing to decay removed from the shelves or barrels, and placed by themselves, for immediate use. It should not be forgotten that a decaying apple that touches another apple will soon rot it; but, more than this, the presence of decaying fruit in a cellar has a tendency to induce decay even in fruit that is not in direct contact with it. Remove all affected fruit from the cellar as soon as possible.

Animals must receive regular, and irregular, attention. They can not help themselves. Their daily wants must be supplied—and these vary somewhat according to the weather. It is here that the intelligence, promptness, and experience of the farmer manifest themselves. Where there is much stock to attend to, and only say two persons to do the work, it is important to know what to do first. This will vary according to circumstances. In our own case, commencing say at half-past five in the morning, the horses are first attended to, the stable cleaned out, and the horses fed and watered. Then feed and milk the cows. Then breakfast. The first thing after breakfast, or about sunrise, feed the sheep their grain, clean out the racks, and give fresh straw or hay. Then feed the pigs, attending to the youngest first; and then feed the poultry a little grain. After this, clean horses, pump water for the sheep, clean out the cow-stables, and water the cows, clean out pig-pens, and do whatever is necessary to make them comfortable. Cook food for pigs, slice turnips for the sheep and mangels for the cows and pigs, and get everything ready for next morning's feeding. This is a great point. Much work can be done before breakfast, provided everything is ready to your hand.

Horses.—If possible, find something for your teams to do. Avoid exposing them to severe storms. Use the brush freely, and feed more or less grain. It is cheaper than hay. A common mistake is to keep horses in the stable for days or weeks, and then perhaps take a load of grain or wood eight or ten miles to market, and when there let them stand out in the cold. The horses are weak from want of exercise and nutritious food, and when they get home they are in an exhausted condition. Grain is perhaps then given them—and the end is indigestion, colic, and death. A warm bran-mash might have saved them. But steady work and liberal feeding are the true preventives.

Cows.—There are an unusual number of farrow cows in the country. If they are giving milk, and are good cows, feed liberally, and continue to milk them. If served now, they would calve next fall, and new milk-cows at that time often bring good prices. Farrow cows, when well fed, give very rich milk. Cows expected to come in early in spring are usually allowed to go dry this month. This is the practice of the writer. Some of our associates

advocate high feeding and milking to within a few weeks of calving. It depends much on the breed and the mode of feeding. Breeding and feeding for milk, and milk alone, for generation after generation, is one cause of abortion. Our own aim is to get the cows in good, strong, healthy condition during the winter, and we feed grain enough to keep them about half-fat—say two or three quarts of corn-meal per day mixed with cut feed.

Young Stock should always be fed liberally, and provided with comfortable quarters.

Keep the Cows Clean by the free use of the card or currycomb and brush. If you do not "believe in it," try it on a few cows, and let the others go dirty. You will soon be satisfied that it pays to make the cows clean and comfortable.

Swine.—Sell all that are fat, and turn your attention to the young and breeding stock. We shall probably have better prices for pork next year, and shall get pay for good breeding and good feeding. Last fall's pigs should have the best of food, and warm, dry, well-ventilated pens. Keep them clean, and give a supply of fresh water. Let them have access to a mixture of ashes, salt, charcoal, and sulphur, and, better still, superphosphate made by mixing ten pounds of burnt bones with ten pounds of water, and then stirring in ten pounds of sulphuric acid. Mix this with the ashes, etc., and let the pigs have all they will eat. It is especially good for pigs troubled with tumors caused by eating too much corn. Breeding sows should have plenty of exercise, and food enough to keep them in a good, healthy, thrifty condition.

Sheep.—Keep them dry, giving breeding ewes as much exercise as possible, but avoid exposure to storms, especially of rain. Keep the weak sheep in separate pens from the strong, and the lambs separate from the old sheep, and feed them better. See "Hints" for last month.

Grain is Cheap.—Half-a-pound of grain per day to each 100 lbs. live-weight will not hurt either horses, cows, or sheep, but, on the contrary, will do them a great deal of good, and pay far better than feeding hay or straw alone. Fattening animals may have one pound of grain per day for each 100 lbs. live-weight. This is the average, but it is well to give a little less at first, and increase gradually as the animals get used to it. In very cold weather they may have a little more.

Work in the Horticultural Departments.

The wintry weather of December does not hold forth much promise of pleasant days for out-door work in January. There now is time for making up reports, for future reference, upon the different crops, their quality, productiveness, etc. One trial of a new fruit or flower is seldom enough to determine its value; different soils and exposures have much to do with results, and affect quality as well as quantity. The commercial gardener does not experiment much with new sorts; this is mainly left to the amateur cultivator. Information upon new varieties is given in the horticultural department of the *Agriculturist*, and their comparative value stated. Every gardener and fruit-raiser should be provided with at least one standard work upon such departments as he is engaged in, and more if possible. Books are the means of elevating the gardener as well as the literary and scientific man, and no one can really afford to be without them, however well-informed he may be in regard to his calling. If the practice of keeping a record of the different crops, their yield, etc., has never been attempted, commence at once, and in the end it will be found a very valuable return for the time spent. By keeping such a record, one in a few years acquires a stock of information which he can get in no other way, and a knowledge which increases in value year by year. The weekly gathering at the neighborhood Farmers' Club will not be neglected; it tends to promote friendly feelings between those engaged in similar branches of horticulture, and plans are often suggested and hints given which prove of great value.

Orchard and Nursery.

Mild days often occur during this month, and advantage must be taken of such to forward the work of the coming spring.

Manure.—Cart or sled out all the manure needed; it will prevent considerable injury to the ground. In spring, the surface is so soft as to render it difficult to carry a heavy load into the orchard, so that every day's work of this kind done now lessens the labor of early spring. The manure should be placed in piles of moderate size, and afterwards be spread evenly over the surface. Do not place directly around the trunks; it only affords a harbor for vermin, and is of no use.

Animals.—Should light snows fall, tramp firmly around each tree to prevent the mice gaining access to the bark. All gates and bars should be closed, to exclude stray cattle, which do damage by breaking down young trees or treading upon seed-beds.

Insects.—It is not too early to look after insects. The eggs of the Tent-Caterpillar can readily be seen now upon the twigs and small branches, and are more easily destroyed than when they are hatched in the spring. Canker-worms will also appear during warm days, and means must be taken to prevent their ascending the trees. Use bands of paper smeared with tar or printer's-ink, which should be renewed as soon as the surface sets hard.

Pruning may be done when there is time, and the weather is not too freezing. Cover the wounds with paint, shellac varnish, or melted grafting-wax, to prevent the moisture from the fresh wound; otherwise there is danger of decay.

Digging Holes for trees to be set next spring is good work for warm days. The frost acts upon the soil, making it finer, and, besides, the time saved is considerable, provided large trees are to be planted.

Fruit Garden.

A fruit garden is better if made separate from the vegetable garden, but to many this will seem a needless waste of room. The majority of farmers and gardeners take advantage of every available space between the rows of trees and small fruits. More thorough and careful culture can be given the trees and small fruits if the ground is not occupied with vegetables. A fruit garden should be situated in a well-sheltered spot, and where the soil is easily drained, either naturally or artificially. In selecting varieties, due regard should be had to both early and late sorts, so that the crops will cover as long a season as possible. If farmers would have their sons remain upon the farm, they should pay more attention to the cultivation of choice fruit and vegetables, and try to create in them an interest for horticulture as well as farming. Very little can be done now except to make plans to be executed in the spring, and occasionally, when a mild day comes, to prune the grape-vines, gooseberries, and such small fruits and trees as require it.

Kitchen Garden.

The most that can be done at the North this month is to attend to the cold-frames, and prepare materials for hot-beds or for forcing vegetables. At the South, many things can be planted as soon as the soil is dry enough; beets, carrots, cabbages, etc., will stand considerable cold, and may be sown as soon as the frost is out of the ground.

Manure.—Turn over the piles of manure before they have a chance to burn. Cart out that intended for crops, and place where it will be needed.

Hot-Beds.—Prepare the sashes for use by giving them a coat of paint or petroleum, and replace all broken glass. They will not be needed for use at the North for a month or two yet. As a general rule, six weeks before the plants are to be set in the open ground is the proper time to start the hot-bed.

Straw Mats should be provided for covering the sashes during cold nights and freezing weather. Directions for making have often been given.

Cold-Frames.—Give air every mild day, so as to

keep the plants as dormant as possible. If snow falls upon them while the plants are frozen, it need not be removed, but if mild, remove when the storm has passed.

Seeds.—See that all seeds not yet cleaned are attended to at once, so that arrangements may be made for ordering what are needed. It is always best to order early to insure prompt attention, and to get such varieties as are wanted; later in the season the stock of some of the best sorts is often exhausted. In order to test the vitality of seeds, sow in a shallow box of soil and place in a warm room. They will germinate in a few days, and if a large proportion are not good it will not do to rely upon the seed for a crop.

Flower-Garden and Lawn.

Winter is the season to prepare plans for future improvement of the lawn and garden. Where one is possessed of abundant means, it is best to obtain the services of a good landscape gardener. Most people, however, will prefer to make their own plans, unless they are to entirely remodel their grounds. Where there is plenty of space, the lawn should be so arranged that it can be extended if desirable. It is best to commence with a few improvements at first, and from year to year such additions may be made as suggest themselves.

Where one stereotyped arrangement of beds and herbaceous plants is employed each season, it fails after a while not only to interest the proprietor, but also the passers-by. Something new each season is to be sought; a bed of sub-tropical plants in one spot this season, and in another the next.

Rustic Work is an important embellishment in the surroundings of a house. There are many climbing plants well adapted to rustic trellises and arbors, and rustic flower-boxes placed here and there upon the lawn for ornamental plants add much to the beauty of a place. A little taste in the selection of materials and skill in making up these rustic ornaments are all that is needed; Laurel and Cedar are the woods most used for this purpose.

Stakes and Labels.—Prepare a good supply of these for use in the spring. Give all a coating of paint, for convenience in reading the names when written. If the ends which are to be placed in the ground are soaked in petroleum they will last much longer.

Plants in cellars and frames should be aired when the weather will allow. Do not water unless they are very dry.

Greenhouse and Window Plants.

The greenhouse will show at its best during this season if properly attended to. In order to grow and flower most plants successfully, the temperature during the day should be at least as high as 60° or 65°. At night, most plants will not be injured if the heat is from 10° to 15° less.

Ventilation.—Give free ventilation when the weather will allow. Always admit air from the side opposite that from which the wind blows, so as to avoid a sudden chill. One of the great hindrances to a healthy growth of plants in the house is the absence of plenty of fresh air, and the presence of dust. If the breathing pores of the plant can not be kept open, plants soon languish. The dust can be removed from the foliage of many plants by sponging the leaves once or twice a week, and from others by sprinkling the whole plant often.

Insects must be looked after, or they will soon become so abundant as to ruin the plants. The Red Spider may be destroyed by keeping the house moist. The Green-fly or Aphis is best kept under by smoking the houses thoroughly with tobacco smoke. House plants may be put under a barrel or in a box, and a few pieces of leaf-tobacco placed upon live coals put inside.

Water.—Give water only when the surface of the pots becomes dry, and then give plenty of it. If only a little sprinkling is given, the soil towards the bottom of the pot remains dry, and the plant soon perishes.

Bulbs.—Bring out the pots of bulbs which have

been put into the cellar, to start a growth of roots. If only a portion are brought out at a time, and the others left until later in the winter, a supply of Hyacinths and other flowers may then be had until spring.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show the transactions for the month ending December 12, 1872, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 d's this mth.	25 d's last mth.	25 d's last mth.
25 d's this mth.	374,000	2,891,000	2,216,000	64,000	961,000	972,000	374,000	2,891,000	2,216,000
24 d's last mth.	348,000	2,317,000	3,569,000	36,000	1,111,000	835,000	348,000	2,317,000	3,569,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 d's this mth.	25 d's last mth.	25 d's last mth.
25 d's this mth.	284,000	2,279,000	2,953,000	36,000	942,000	1,251,000	284,000	2,279,000	2,953,000
24 d's last mth.	313,000	2,435,000	3,597,000	41,000	1,000,000	1,395,000	313,000	2,435,000	3,597,000
Comparison with same period at this time last year.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 days 1872.	24 days 1871.	24 days 1871.
25 days 1872.	374,000	2,891,000	2,216,000	64,000	961,000	972,000	374,000	2,891,000	2,216,000
24 days 1871.	321,000	2,973,000	2,341,000	298,000	933,000	1,783,000	321,000	2,973,000	2,341,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 d's 1872.	24 d's 1871.	24 d's 1871.
25 d's 1872.	284,000	2,279,000	2,953,000	36,000	942,000	1,251,000	284,000	2,279,000	2,953,000
24 d's 1871.	257,000	2,304,000	2,573,000	156,000	1,045,000	1,809,000	257,000	2,304,000	2,573,000
Exports from New York, Jan. 1 to Dec. 12.									
Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	1872.	1871.	1870.	1869.
1872.	1,104,473	12,477,683	25,001,476	668,547	22,656	31,288	1,104,473	12,477,683	25,001,476
1871.	1,601,110	21,729,731	12,050,039	507,782	98,745	44,445	1,601,110	21,729,731	12,050,039
1870.	1,885,856	17,773,810	417,328	92,431	—	27,786	1,885,856	17,773,810	417,328
1869.	1,612,030	17,903,887	1,619,970	142,642	—	48,538	1,612,030	17,903,887	1,619,970
1868.	843,393	4,809,327	5,645,735	153,093	61,598	119,479	843,393	4,809,327	5,645,735
Stock of grain in store at New York.									
Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.	1872.	1871.	1870.	1869.
December 9.	1,805,975	5,675,730	51,665	624,551	1,608,865	215,326	1,805,975	5,675,730	51,665
November 6.	424,760	4,783,426	31,374	376,750	2,191,362	230,437	424,760	4,783,426	31,374
October 7.	23,142	3,842,181	39,542	49,025	2,555,006	12,333	23,142	3,842,181	39,542
September 9.	95,674	2,681,582	89,830	31,133	2,638,976	31,414	95,674	2,681,582	89,830
August 12.	83,321	429,104	130,161	33,789	2,077,893	215,408	83,321	429,104	130,161
Receipts at head of tide-water at Albany each season to Nov. 30th.									
Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	1872.	1871.	1870.	1869.
1872.	134,100	11,320,800	29,770,100	456,800	4,459,300	5,639,800	134,100	11,320,800	29,770,100
1871.	220,776	21,313,400	20,012,300	1,107,900	3,839,400	6,639,400	220,776	21,313,400	20,012,300
1870.	430,400	17,124,700	4,505,100	587,500	3,984,700	6,167,500	430,400	17,124,700	4,505,100

CURRENT WHOLESALE PRICES.

	Nov. 12.	Dec. 12.
PRICE OF GOLD.	113 1/2	112 1/2
Flour—Super to Extra State	\$5 65 @ 7 75	\$5 65 @ 7 90
Super to Extra Southern	5 50 @ 10 00	6 10 @ 12 75
Extra Western	6 75 @ 13 00	6 75 @ 13 00
Extra Genesee	7 80 @ 10 00	7 90 @ 10 00
Superfine Western	5 55 @ 6 25	5 65 @ 6 40
Rye Flour	3 75 @ 6 12 1/2	4 10 @ 6 50
CORN-MEAL	3 75 @ 8 00	3 90 @ 9 00
BUCKWHEAT FLOUR—No. 100 lb.	3 75 @ 4 30	3 90 @ 4 40
WHEAT—All kinds of White.	1 65 @ 2 00	1 75 @ 2 03
All kinds of Red and Amber.	1 28 @ 1 75	1 33 @ 1 85
CORN—Yellow	65 @ 65 1/2	67 @ 68
Mixed	63 @ 64 1/2	64 1/2 @ 67
OATS—Western	39 @ 40 1/2	45 1/2 @ 55 1/2
State	42 @ 42 1/2	42 @ 42 1/2
RYE	82 @ 90	90 @ 95
BARLEY	80 @ 119	85 @ 116
HAY—Bale, 100 lbs.	95 @ 150	1 00 @ 1 75
STRAW, 100 lbs.	75 @ 1 20	85 @ 1 30
COTTON—Middlelings, 40 lb.	19 @ 19 1/2	19 1/2 @ 20 1/2
HOPS—Crop of 1872, 40 lb.	30 @ 37 1/2	37 @ 50
FEATHERS—Live Geese, 40 lb.	40 @ 70	70 @ 70
SEED—Clover, 40 lb.	9 1/2 @ 9 1/2	9 1/2 @ 9 1/2
Timothy, 40 bushel.	3 12 1/2 @ 3 50	3 00 @ 3 50
Flax, 40 bushel.	1 90 @ 2 00	2 00 @ 2 10
SOAP—Red & Grocery, 40 lb.	8 1/2 @ 11 1/2	9 @ 11 1/2
MOLASSES, Cuba, 40 gal.	18 @ 34	18 @ 35
New Orleans, 40 gal.	— @ 18 1/2	15 @ 18
Coffee—Hog Gold, 40 lb.	13 @ 15	13 @ 15
Tobacco, Kentucky, 40 lb.	8 @ 16	9 @ 16
Seed Leaf, 40 lb.	8 @ 50	8 @ 50
Wool—Domestic Fleece, 40 lb.	55 @ 75	60 @ 75
Domestic, pulled, 40 lb.	25 @ 55	43 @ 68
California, clip	20 @ 40	23 @ 45
TALLOW, 40 lb.	38 50 @ 40 00	38 50 @ 40 00
Oil—Cane, 40 lb.	15 87 @ 16 12	13 00 @ 13 75
Port Wine, 40 lb.	12 50 @ 12 75	12 25 @ 12 50
Prime, 40 lb.	8 75 @ 7 75	10 00 @ 12 00
BEEF—Plain mess.	8 75 @ 7 75	10 00 @ 12 00
LARD, in tins & barrels, 40 lb.	8 1/2 @ 8 1/2	7 1/2 @ 8 1/2
BUTTER—State, 40 lb.	20 @ 28	18 @ 40
Western, 40 lb.	9 1/2 @ 25	10 @ 25
CHEESE	5 @ 15	4 @ 14 1/2
PEAS—40 bushel.	1 50 @ 2 25	1 15 @ 2 25
PEAS—Canada, free, 40 bu.	1 08 @ —	1 10 @ 1 12
EGGS—Fresh, 40 dozen	29 @ 34	32 @ 37
POULTRY—Fowls.	12 @ 30	6 @ 16
Turkeys—40 lb.	14 @ 22	8 @ 17
Geese, 40 pair.	1 75 @ 2 00	1 50 @ 2 50
Ducks, 40 pair.	62 1/2 @ 1 00	50 @ 87
Woodcock—40 pair.	70 @ 85	— @ —
Partridges	62 1/2 @ 1 25	62 @ 1 00
WILD DUCK—40 pair.	35 @ 2 50	40 @ 2 50
QUAIL—40 doz.	2 00 @ 3 00	1 25 @ 1 50
VENISON—40 lb.	13 @ 21	12 @ 21
HARE—40 pair.	50 @ 80	40 @ 80
RABBITS—40 pair.	35 @ 50	30 @ 40
TURNIPS—40 barrel	1 00 @ 1 75	1 25 @ 1 50
CABBAGES—100.	6 00 @ 10 00	6 00 @ 10 00
ONIONS—100 bunches.	2 50 @ 3 50	3 50 @ 4 00
ONIONS—40 bbl.	2 50 @ 4 50	3 00 @ 4 60
ROOM-CORN—40 lb.	2 @ 2	— @ —
APPLES—New, 40 barrel.	1 25 @ 3 50	1 25 @ 3 00
POTATOES—40 bbl.	1 75 @ 3 00	1 25 @ 3 00
GARLIC—100 bunches.	15 00 @ 18 00	— @ —
SWEET POTATOES—40 bbl.	2 00 @ 3 00	3 50 @ 4 25
SQUASHES—40 bbl.	75 @ 1 00	— @ —
CARROTS—40 bbl.	2 00 @ 2 50	1 50 @ 2 10
CELERY—40 doz.	1 87 @ 1 75	1 50 @ —
CARLISLE BEVER, 40 doz.	1 00 @ 3 00	— @ —
PEARS—40 bbl.	4 00 @ 25 00	4 00 @ 11 00
GRAPES—40 lb.	5 @ 12	7 @ 10
CRANBERRIES—40 crate.	2 50 @ 3 50	2 50 @ 3 50
QUINCES—40 bbl.	— @ —	5 00 @ 7 00

Gold has been down to 112 1/2, closing December 13th at 112 1/2. The closing of canal, river, and lake navigation for the season has been against active produce

movements within the past month, especially so since the earlier days of December. Breadstuff arrivals have fallen off materially, and the main reliance of the trade here has been the supplies in store or yet afloat here in boats—the railway receipts having been comparatively quite moderate. The demand for the leading kinds of Breadstuffs has been fair for home use and for shipment; though the export inquiry has been checked by the extreme scarcity of ocean freight room. Prices have been generally well maintained, Flour, Wheat, Corn, and Oats closing rather in favor of sellers. Prime lots of Winter Wheat are in very limited stock at this point, and are wanted for milling purposes. Barley has been exceptionally heavy, and at the close lower, the offerings having been in excess of the urgent wants of purchasers. In Barley Malt, the business has been more satisfactory, at comparatively firm prices. The heaviest dealings were at the very close. Cotton has been freely sought after, closing a trifle stronger, though the receipts at the ports have been very liberal, and holders generally quite prompt in responding to the demand. Provisions have been moderately active. Hog products have declined materially. Beef steadier. Really good to strictly prime Butter firmer. Cheese heavy. Tobacco, Hay, and Seeds have been in fair though not active request, at full rates. Wool opened decidedly higher, influenced largely by the destruction of stock by the Boston fire, which stimulated the demand; but the market closes tamely at the improved figures, which yet represent the views of holders. Hops have advanced sharply on an active inquiry, closing strong.

New York Live-Stock Markets.

WEEK ENDING	Bees.	Cows.	Calves.	Sheep.	Swine.	Totl.
November 18th.	8,832	87	1,579	29,884	57,835	97,008
November 25th.	10,739	82	1,441	28,599	45,450	86,372
December 2d.	7,581	127	1,621	32,342	64,149	105,781
December 9th.	9,073	157	1,576	22,533	51,016	84,355
Total for 4 Weeks.	36,265	495	5,899	112,958	218,171	234,216
do. for pre-4 Weeks.	12,292	351	9,247	137,573	232,703	426,000

	Bees.	Cows.	Calves.	Sheep.	Swine.
Average per Week.	9,065	103	1,432	28,599	51,618
do. do. last Month.	8,458	76	1,809	27,577	46,561
do. do. pre-4 Month.	9,356	80	2,692	32,947	49,829

Beef Cattle.—The supply has been quite large during the past month, and a heavy feeling pervades the markets. Stock usually runs poor at this season of the year, when farmers send off such trash as they do not care to put upon winter feed, but it would seem as though they were now of poorer quality than usual, or owners have been more particular to reserve only good cattle. Texas turned out a great many droves. Those which had been wintered in the cultivated States showed fair quality, but the "through drive" was poor. The total number of Texans entering Kansas over the noted Chisholm trail was 350,375 during the year, against 455,501 in 1871. If this rate of diminution continues, our Western States must go more largely into cattle-raising. Fat cattle have been in good request during the past month, but poor trash was at a discount, and lots hang over from one market-day to another. Trade has not been satisfactory to dealers. One cause of the dullness was the abundance of poultry sold at low prices, and largely eaten after people got over their scare relative to diseased stock. Pork and mutton are also low. We are beginning to receive some of the advance guard of Christmas steers, a few of which were sold at 15c. @ 16c. 1/2 lb., weighing 10 @ 12 cwt. net.

The prices of the past 4 weeks were:

	Range.	Large Sales.	Acct.
Nov. 18th.	8 @ 15 1/2	10 @ 14 c.	11 1/2 c.
Nov. 25th.	7 @ 15 c.	9 @ 13 c.	11 1/2 c.
Dec. 2d.	7 @ 15 c.	8 @ 12 1/2 c.	11 c.
Dec. 9th.	6 @ 15 c.	8 @ 12 1/2 c.	11 c.

Milk Cows.—The fresh-cow trade has been variable, owing very much to the fluctuation in milk, which varied from \$2.25 @ \$5 per can. At one time, milkmen could not be induced to buy cows, while at another, perhaps only a few days after, they could not get enough. Prices have advanced about \$5 average during the month. The rates are \$40 @ \$52 each for very ordinary to thin cows of small size; \$65 @ \$80 for fair to good milkers, and \$85 @ \$90 for prime to extra large cows.

Calves.—There has been an increase in the receipts of live calves, while dressed were sent in very plentifully, cool weather favoring shipping from quite a distance. Prices have declined, and live go slowly, most butchers preferring them ready dressed. Quotations for live, \$4 @ \$10 each for grass-calves; 6c. @ 9c. 1/2 lb. for ordinary to prime milk-calves; 4c. @ 7c. for hog-dressed grass-calves, and 9c. @ 13c. for poor to fat milk-calves. **Sheep and Lambs.**—With a slight increase in receipts, the market has been unfavorable for owners of stock, save where very choice sheep were sent in. The greatest run was of poor quality, such as feeders usually manage to get rid of before feeding time. Some of these were sold as low as 4c. 1/2 lb. Trade closes very dull for all save prime sheep. Lambs are generally sold with the sheep, and at same prices. Some holiday stock of 150 @ 175 lbs. is on the way here. Sheep pelts average about \$2 each. The quotations are: for sheep, 4c. @ 5c. for poor

to medium, and 5½c. @ 6½c. for fair to choice, a few extras going at 6¼c. Lambs take the range of 6c. @ 7½c. . . . **Swine.**—Arrivals are quite free, but with a good foreign and domestic provision trade cutters are using them up rapidly. Still, live hogs have declined fully ½c. during the month. Western dressed begin to arrive. Quotations of live hogs, 4½c. @ 4¾c.; city-dressed Western, 5¼c. @ 6c. for heavy to medium, and 6¼c. @ 6½c. for light; Western dressed, 5¼c. @ 5¾c.; State and Jersey, 5½c. @ 7¼c.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.** . . . **Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

ALL for a DIME.—All our readers who do not now have *Hearth and Home*, ought to get the one number for January 4th, 1873. Besides its regular pages, fine pictures, etc., it contains a large Supplement with Mr. Eggleston's new Story, "The Mystery of Metropolisville." Get this number without fail, from the newsman, or a copy will be sent from this office, post-paid, for ten cents.

Subscribe for Both Papers.—The subscription price for the *American Agriculturist* and for *Hearth and Home*, when both papers are taken together, is only \$4, and \$4.75 pays for both papers, and for both the *Chromos*, mounted and prepaid.

Delivery of Chromos.—Our subscribers will please remember that the *Chromos* are delivered in the order in which the money for mounting and forwarding has been received. It is of course for the publishers' interest to deliver them as fast as possible, and all will agree that the rule mentioned is just and fair.

The Outlook.—The long-time friends of the *American Agriculturist* will be glad to learn that at this time of writing—the middle of December—the subscriptions are coming in at an almost unprecedented rate, and that the prospects for an immense circulation were never equal to those of the present time. We may be allowed to say editorially to our friends, both old and new, that they share in the success that attends our journal, as the more the publishers receive, the more they expend in making the paper valuable to its readers. The publishers limit our expenditures by only one condition—that we shall expend all the money needed to improve the paper. It does the editorial heart good to see the cheery faces of the publishers as the mail-bag is emptied several times a day. Our readers have certainly given them "a Happy New Year," and we accept the obligation to make a return which shall each month show that the greeting is not forgotten. THE EDITORS.

Worthy of Everybody's Attention.

The fine Premiums offered on page 33 are well worth looking into. Over **14,000 Persons** in all parts of this country, in British America, in Australia, in the Sandwich Islands, in South Africa, and elsewhere, have each obtained one or more of these valuable articles, with little trouble, by simply collecting a list of subscribers. This has been done by many Children, by many men in all pursuits and professions, and by a large number of Ladies. See "A Good Paying Business," on page 40.

Page 32 gives information of interest to every subscriber, whether old or new.

Old and New.—Not the excellent journal of that name, but our old and new Readers—just a word with you at the beginning of the year.—*First.* When you write, always give your correct post-office address and your proper name. If you ask a question or send a communication, sign it what you please, but always give your name besides. No one is expected to notice anonymous letters.—*Second.* If a letter is not answered, do not attribute it to neglect. Sometimes questions are asked which no one can answer. Sometimes one will put down twenty or more questions on as many different subjects, and it would be cheaper for us to send him some books than to take the time to answer all his questions. One letter should never contain more than two or three queries, and if these relate to widely different subjects, such as grape-growing and sick pigs, they will stand a much better chance of attention if written upon different slips of paper than if crowded into one sheet.—*Third.* It is our pleasure to give any information that we may possess, and it annoys us to have any one send any sum whatever, save the return postage, as we do not sell our advice, save through the paper.—*Fourth.* While, as a matter of courtesy, we aim to answer all sensible queries, desiring as we do to cultivate pleasant relations between readers and editors, we do not in any sense feel obliged to answer. Some inconsiderate persons, finding a question is not answered at once, feel offended. If they knew that such work was a "labor of love," and done in evenings and at other times out of office hours, they would be less exacting. We do the best we can, but letters come by thousands—and editors are mortal.—*Fifth and last.* Unless a letter reaches us on or before the tenth of January, it has little chance of being noticed in the issue for February, and so on.

The German Agriculturist is mainly a reproduction of the English edition, with a special department edited by the Hon. F. Münch. We request our readers to mention the German edition to their German friends. Many persons who employ German laborers, gardeners, etc., subscribe for it in order to supply their help with useful reading matter.

Remington & Sons, manufacturers of the "Remington" breech-loading Hunting, Sporting, and Target Rifles and Shot-Guns, have received the following from Ellis, Kansas: "I have one of your guns, and I killed, on September 22d, forty-nine (49) buffaloes in one 'stand,' which no other man ever did on the Plains. Yours truly, H. M. West."—Messrs. R. & Sons have other letters of similar purport.

Our Chromo gives great satisfaction to every one who sees it. It is secured very easily. See page 32.

Vick's Catalogue.—Mr. James Vick, of Rochester, N. Y., seems to be engaged in an attempt to outdo himself. Each year his Seed Catalogue is more resplendent than on any former year, and now, on the principle that one can not have too much of a good thing, he proposes to issue it quarterly.

Missouri State Horticultural Society meets at Jefferson City on the 7th inst., and will continue for four days.

House Plan.—Some one sends us a plan of house and garden on "Elizabeth St.," but gives neither name nor place, both of which are wanted.

Seed-Corn.—"E. E. W." asks, when and how should seed-corn be secured, and should the grains from the whole ear be planted for seed.—It is best to go

through the field in advance of the cutters, and select those stalks bearing two perfect ears, and keep those ears for seed. The ears should be hung in bunches, made by tying or plaiting the husks together, in a perfectly dry, airy place, until wanted for planting in spring, when they should be shelled by hand, and only the perfect grains from the middle of the ear be used. Use as seed only the perfectly-formed grains, as those at the tops and butts of the ears are not well formed nor of good size.

Blunt's Strainer.—This attachment to pumps, which was noticed in November last, received a special award at the late Fair of the American Institute.

Ohio Dairymen's Association will hold its ninth annual meeting at the American Hotel in Cleveland, on the 22d and 23d inst. The genial Col. S. D. Harris is Secretary.

Grass Bouquets.—Messrs. Peter Henderson & Co. send us a fine bouquet of native grasses and sedges made by Miss Cowan, of North Carolina. There are a large number of grass bouquets imported, but the work of Miss C. can compete with the foreign.

Beans and Sunflowers.—Dr. George Roberts, Santee Agency, Neb., writes: "In the August paper 'G. W. W.' wants to know if it will do to plant beans and sunflowers together. I had a beautiful patch of sunflowers and Lima beans. The beans were hanging full of pods and filling out, but the grasshoppers, a torment of this country, came August 4th, and ate everything above ground but melons and tomatoes. The stalks of sunflowers and corn stand as so many bean-poles. Plant the seeds of sunflowers (one in a hill) three to four feet apart as soon as the ground is ready in the spring; they then get a good start for the beans, which are to be planted at the proper time in warm weather."

SUNDRY HUMBUGS.—The most unpleasant part of our editorial work, from month to month, is that which falls under this heading; yet we shall cheerfully continue it, as we have for more than a dozen years past, because of the constant assurances coming from all directions that this is one of the most useful smaller departments of the *American Agriculturist*. The fact that our index to swindling concerns contains 71 new names, added since our last issue, is abundant evidence that the sharpers are actively at work. As they do not run the risks incident to their business without large gains, it is evident that there are plenty of un-*happy* people who bite at the numerous baits these operators so industriously scatter broadcast. The mails are literally loaded down with the millions of circulars sent out. If a copy of this Journal could be put into the hands of every family in the country, the humbug business would become so unprofitable that it would quickly die out. The scores of bushels of humbug circulars sent to us by our readers indicate that they are put well on their guard. To the tens of thousands of our new readers this year we here offer a few general remarks: As a rule, every doctor who advertises himself, his medicines, or his practice, in circulars or newspapers, is a quack, utterly unworthy of the least confidence whatever. This includes those offering to cure consumption, cancers, catarrh, eyes, ears, private diseases, etc., etc. Trust no Medical Institutes, Howard Associations, and the like, advertising medicines, medical advice, cures, Books on Marriage, Marriage Guides, Private Diseases, Errors of Youth, etc., etc. No reputable physician, of any school of medicine, advertises medicines or advice.—Buy no watches or jewelry of any person whom you do not know personally or by good repute. Nine tenths of all the advertisers of watches through circulars, etc., are unreliable. Never buy a watch or jewelry from ANY person whom you can not easily reach if the article prove bad. Put no confidence in any imitation watches, whether of Oroide or other metals. They are not worth their cost, no matter how low the price at which they are offered. No article, whether watches, jewelry, or other, made mainly of gold, silver, or precious stones, ever goes begging customers at half-prices. Such articles have a standard value, as much as gold and silver coin have, and they always command a good price from ready buyers among dealers themselves. . . . One of the most dangerous of this month's humbugs is a neat little pamphlet, sent out in letter envelopes, telling a tale of love, etc., about the inventor of a \$1 Parisian watch, which is offered, together with a chain "as good as a genuine gold chain worth \$100," all for \$5. The story is told in a way to enlist the curiosity, sympathy, and then the confidence of the readers. It is on a par with Mother Noble and Aunt Lee's patent-medicine tales. . . . The helps to eyesight, advertised under various pretentious names, are usually no better than the common spectacles one can buy of any neighboring dealer at 25c.

to \$1 each. The pretended benevolent prize-drawing at Lincoln, Neb., is neither more nor less than a lottery got up for individual speculation, and no wise person will invest a dollar in it. The same of the Omaha Grand Concert, called a "Noble charity." They should be let alone severely. Young men (and old) should pay no heed to the benevolent (?) doctors, associations, etc., that offer them cures for certain diseases. Let any of them get a line from you, of inquiry even, and you might as well send them your last dollar at once, for they'll get it by working upon your fears, and kindly offering to cure you—which they won't. The Loan-Brokers' Union, R. H. Lewis, 4 Bond st., N. Y., manager, with its immense pretensions, is a swindle. Dr. F. E. Andrews, of Albany, N. Y., and Lexington ave., N. Y. City, is a detestable quack, an unmitigated nuisance, as we have often before stated. Our Rochester friends will find him set forth in previous numbers of the *American Agriculturist*. D. C. Hathaway & Co., 115 Nassau st., N. Y., is a revival of one of Hubbard's old swindles. His pretty tickets, offering valuable watches for \$2, are lies, as every one ought to know, but all do not, because of the plausible agency statements coming with them. In S. A. Belmonte & Co.'s fine circulars of the Hamburg Lotteries, put a *u* for the *a*, and drop the *r*, and save your money. Old Mother Noble, Aunt Lee, and Jonas Appleby's lying stories are successful enough we suppose to warrant another falsehood—that of Edwin Eastman about his capture by the Comanche Indians, and the medicine he got there, and how it is sold by Dr. Clark Johnson, of Jersey City. One of the holdest thefts of the Livery of Heaven to serve the devil in we have yet seen, is the pretended Church Lottery of Brooklyn, N. Y., professedly to build a mission church on Myrtle avenue. We believe the authorities have suppressed the *very* Rev. (?) Wm. C. Clark, chief operator, and so we pass it by. One of the "Queer" or "Sawdust" swindlers is very active. Our newer readers will understand that these sawdust operators *pretend* to have counterfeit money so perfect, that no one can tell it from the genuine. They offer it at 10 cents on the dollar, or less. If you wish it by express, they will send it C.O.D., and you then pay for it to the express, and on going to a private place to open it, of course find a box of old papers, "sawdust," etc. They invite you to come to the city, and if you come, they will "skin you alive" without fail, by aid of their false policemen, etc. In all cases they get your money, and you get none, either real or counterfeit. They never have a dollar of it. They do a safe business, because only dishonest people, those who are willing to cheat others, ever respond, and such persons dare not appear as witnesses. Some write as if afraid of the threats of these fellows, if one exposes them. Don't be alarmed; all swindlers and mean men are cowards, and these operators are no exception. The N. Y. P. O. authorities try to keep letters out of swindlers' hands, and they have to change names pretty lively. Here are fifty names used in his circular by one single operator, who pretends to have been a U. S. engraver, and to furnish counterfeits: at No. 609 Broadway, Chas. Ayres, John Bergman, Otis T. Beager, Geo. Boone, A. M. Bond, H. C. Chester, H. Chester, Daniel Chapin, W. F. Cadey, Geo. Correll, E. T. Cogswell, A. T. Earle, Allan Eaton, Alonzo Everts, S. F. Ferguson, Geo. W. Gearey, T. S. Gowan, L. M. Grafton, H. M. Griswold, A. P. Gould, Edwin Gregory, Geo. W. Haroll, Wm. F. Hume, H. Hodges, Geo. Holcomb, Peter Hoover, L. Hersch, S. L. Kent, E. S. Leannison, T. McLean, Louis Marion, Hiram McCall, W. L. Salem, G. M. Swift, W. T. Warnesey, Wm. H. Walman, —at 34 Amity street, he calls himself G. Brocken, L. T. Cooper, R. Camben, Theo. Cedar, K. P. Douglas, L. Goodline, H. Gentry, Andrew J. Lioes, Benj. Lehigh, Col. R. McClurg, Dr. J. McFarland, Dr. J. W. Pool, N. S. Tice, Louis T. Weekes. Quite a lot of other humbugs must go over for notice next month, for want of room.

Errors.—In spite of all care, typographical errors will sometimes occur, though we are usually remarkably free from them. On page 13, instead of "April to August exclusive," read *inclusive*, and on page 24, under Coral-Berry, read *dioecious* instead of "dioecious."

Pennsylvania Fruit-Growers' Association will meet at Reading on the 15th inst. This is a wide-awake society, and its annual gatherings are always interesting.

Reeves & Simonson.—Mr. E. A. Reeves, formerly in the agricultural implement business, has associated himself with Mr. I. J. Simonson, and will carry on the seed and florist business at 58 Cortlandt st., N. Y.

Fanciers' Association and Bulletin.—The publication of the Poultry Bulletin having, with its increasing business and circulation, become too much of a care to the officers of the N. Y. State Poultry Society, an Association has been formed to conduct it.

At a meeting of stockholders the officers elected were: President, Philander Williams, Taunton, Mass., with four Vice-Presidents; Secretary and Treasurer, W. Lee Darling, New York City, and five Directors. The name of the paper was changed from "The Poultry Bulletin" to "Pet-Stock, Pigeon, and Poultry Bulletin," and the organization adopted the name of "Associated Fanciers."

A Wisconsin Flock.—The Western Rural tells of a flock of 1,700 merinos, owned by Eli Stillson, of Oshkosh, Wis., which produced 7,135 pounds of wool, bringing \$4,096. The flock now numbers over 2,000.

Bean-Soup.—Faith Rochester writes us, too late for us to make the correction, that in her directions for bean-soup, page 26, she intended to say, "strain the beans through a colander."

Carrot Seed.—E. White, Mich., raised a bed of carrots, and a large share went to seed. He asks if this seed would be good.—By no manner of means.

Best Force-Pump.—A "Michigan Correspondent" will find the American Submerged Pump the best force-pump for ordinary use.

Spavin.—"S. H. B.," Miami Co., O., wants directions how to treat a spavin.—The request is so vague, and there are so many sorts of spavin, and spavins occur under so many different conditions, that it would be worse than useless to give any advice. Spavins are very often made worse and the animal permanently injured by injudicious treatment. Either give exact descriptions or apply to a veterinary surgeon.

Veterinary Surgeons.—It is apparent to any thoughtful man who reads the agricultural journals, that a wide opening exists throughout the country for properly-educated veterinary surgeons. A vast amount of misery to poor suffering beasts is occasioned by cruel and improper treatment, and the amount of money lost yearly, would suffice to support an educated surgeon in every county in the country.

Breeding Mules.—"C. O. B.," Vosburg, asks what is the character of the best jack and dam to breed mules, and are large mules objectionable.—We should be glad to hear from some one who has had experience in these matters in reply to these questions.

What are the Cheapest Drains?—"C. O. B." asks which are the cheapest drains where stone is plenty, stone or cement tile.—If the stone is properly laid, stone is undoubtedly the cheapest. (The articles mentioned can be procured at any agricultural store in any considerable town.)

About Beans.—"J. R.," New Casco, Mich., tells us what he knows of beans. He raised a crop, and from one stalk picked the pods, in which there were 850 beans. This is about equal to the traditional bean-stalk.

Stump-Pulling.—"G. C. A.," Maricou Co., Oregon. No stump-puller will take out the largest stumps without some assistance occasionally, in cutting the large roots when they spread far. As good a stump-puller as any we know, and one that will take out the largest stumps, was described and engraved in the *Agriculturist* of September, 1871.

Preparing Fence-Posts.—"H. W.," who incloses stamp but gives no address, asks to be informed of an economical way of preparing fence-posts to increase their durability. The best way probably is to season them thoroughly and then set the lower part of them in hot gas-tar or pine-tar for about a foot above the level of the ground when set. Another way is to soak the butts in a strong solution of sulphate of copper.

Pisciculture.—Wm. Clift, Mystic Bridge, Ct., is a proper party to apply to for advice as to stocking springs or ponds with fish, or as to procuring fish for that purpose.

Drive-Well.—"C. B.," St. Johns, N. B., wants to be put in communication with the manufacturer of the drive-well pipes.—Unfortunately we can not find any advertisement of him. The drive-well is a valuable thing, in suitable localities, and should be made widely known.

Homesteading.—"H. D.," Madison Co., Iowa, wants to "homestead" a piece of land, and asks our opinion about Montana and Dakota, and whether those territories will soon be open to settlement.—"H. D." had better write to the land agent of the North Pacific Railroad Co., St. Paul, Minn., who will forward him all

the information necessary. We are acquainted with parties in both territories who are well pleased with the country and are successful there. The soil is said to be rich, and the climate agreeable and healthy.

How to Raise Ducks.—"F. M. B.," Great Falls, N. H., wants to know the best breed of ducks for table use, and on what food to feed them.—We have found the Aylesbury ducks very good, while others prefer Rouen. Corn-meal, and chopped vegetables, such as cabbage, lettuce, and onion-tops, are good feed.

What Breed of Fowls.—"A Subscriber," Lyme, Ct., asks which is the best breed of fowls for size and quality of eggs and steadiness of laying.—We have had pure light Brahmas to lay eggs steadily throughout the winter; the eggs of Brahma hens are good size and of pleasant flavor, with a deep-colored yolk, much liked by cooks for cakes and puddings. Leghorns are much thought of by some as good steady layers; probably the next best are the Black Spanish. Eggs by express properly packed should hatch, *if good*, without fail.

Cistern Filter.—"Subscriber," Boone Co., Ark., asks if water will filter through a brick wall four inches thick built for a partition in a cistern.—Yes, if the brick is what is called soft brick, which is very porous. But it is not the best way to make a filter. A good cistern filter is figured in the *Agriculturist* for March, 1872.

Scratches.—"T. W.," Tusculumbia, Ala. Scratches or grease is generally caused by wet pastures or filthy stables. It is often cured by removing the cause, washing the heels clean with carbolic soap, drying with a soft cloth, and anointing with glycerine or lard perfectly free from salt. If this is not effectual, one pound of carbonate of potash should be dissolved in two quarts of water. A quarter of a pint of the solution is mixed with a gallon of water, and the heels bathed therewith twice a day for half an hour.

Sundry Questions.—"C. F. K.," Westford, Mass., asks the following questions: (1st) Will it pay to sell his farm and go West, and loan the money at 12 per cent, when he makes only 4 per cent at home by farming? (2d) Where can he buy a thorough-bred Ayrshire cow? (3d) Would not pressure burst the butter-globules in milk and make butter better than the dash-churn? (4th) Will dry corn-meal make milk? (5th) How much more will it make if red as gruel? (6th) Will it pay to feed it when milk is 4 cents a quart?—Replies:—(1st) Yes, he is one of the men who can do good by going West. (2d) Write to L. A. Chase, Florence, Mass. (3d) No; pressure will not burst the globules. (4th) Not much. (5th) Several times more. (6th) Yes.

Tar-Fever.—"J. W. K.," Cleveland, Ohio, has lately lost a valuable horse by what the man who doctored him called "tar-fever." When the horse was opened the lungs were found inflamed.—The quack probably meant catarrhal fever, a name sometimes given to the results of a cold. The disease may have been pneumonia, pleurisy, or congestion of the lungs, either of which has well-marked symptoms and generally yields to proper treatment. The case shows the necessity for employing a skillful veterinary.

Covered Manure Heap.—"E. B. S.," Manhasset, L. I., asks if it would be well to cover the manure heap with a shed to protect it from rain. No, if it is protected from wash from roofs, that is sufficient; the rain that falls upon it will be all needed to prevent dry rot and to cause it to decompose properly. The top of the heap should be made dishing, to collect the rain.

A Knuckler.—"T. E. C.," Bridgeton, N. J., has a horse that knuckles very badly, and would have a care if possible.—This double action of the pastern-joint is caused by weakness or disease in the hock-joint. If weakness is the cause, feed the horse well, and give him tonics, as sulphate of iron, half a teaspoonful, and twice as much gentian-root, powdered, in his feed, once or twice a day. If the hock-joint is out of order, apply two parts of olive oil with one part of creosote and oil of turpentine to the joint twice a week.

Corn and Clover on Peat.—"E. G. H.," Cook Co., Ill., finds a difficulty in growing a perfect crop of corn or clover on a piece of land that was formerly covered with a pond, and which consists mainly of peaty matter of a light texture. He asks how shall he proceed.—The difficulty would probably be removed by the use of lime at the rate of fifty bushels per acre. There is too much vegetable matter in the soil.

➡ See Pages 32 & 33.

Grottoes.—Mrs. Forbes, in Iowa, asked about grottoes. We replied by mail, but the letter came back as uncalled for, and we give it here.—If Mrs. Forbes will state more definitely what she means by "artificial grottoes and in-door rock-work," we will endeavor to comply with her request. We have never known of anything of this kind larger than what would be contained in a fernery or Warden case. Rock-work of any considerable dimensions would be rather unmanageable in-doors. Perhaps a word of explanation will make us better understand what she wishes.

Mixing Lime and Manure.—"Young Farmer" proposes to prepare his barn-yard manure for use next spring by turning it over during the winter, and mixing lime with it. How would it answer?—We would not advise this plan. It would be better to turn over the manure and let it ferment and rot, and in spring apply it to the soil, and after plowing spread the lime and harrow it in. Fresh manure is injured by contact with lime.

Cost of Sheep-Netting.—In reply to several inquirers, we have ascertained that ready-made sheep-netting, as described in the *Agriculturist* of November, 1872, four feet in width, costs in England 12½ cents per yard in nets of 50 or 100 yards in length. It can, therefore, be imported much cheaper than it can be purchased here from the net manufacturers. The netting described in the *Agriculturist* was intended to be hand-made. It is doubtful if it could be made here under any circumstances so cheaply as it could be imported. Parties desiring the names of the English manufacturers may write us for them.

Homesteads in North-western Iowa.—John Brennan, Immigration Agent for the State of Iowa, writes that there are still 4000 acres of land open to settlement under the Homestead act in the county of Osceola; ten miles from railroad, good rich prairie, but without timber. The United States Land Office through which applications are to be made is at Sioux City.

Purifying Butter.—"S. G.," Chicago, wants a method of sweetening rancid butter so as to fit it for sale and use.—We know of no satisfactory method of doing this. There are many nostrums recommended, such as washing in lime-water, or in water with chloride of lime or salt and saltpeter; but we have never tried any of them, and doubt that the butter can be improved in flavor in the least degree by any of them. Rancid butter, like tainted meat, has commenced to decompose, and no treatment can restore it to its former condition, though it may possibly temporarily remove the unpleasant smell.

Market-Gardening.—H. Geeding. We do not think that anything is quite equal to stable manure. Next to this we would place bone-dust, blood-manure, and fish-guano. Unless the real value of superphosphates is known, we should prefer not to risk them. If you have land enough to enable you to turn under a green crop each year, you can do well with either of the fertilizers named.

Quince-Trees.—"A. S. C.," of Michigan, has quince-trees 7 and 8 years old that "have been salted and brined and treated to slops to no purpose," and asks what he shall do to make them bear.—It is difficult to prescribe for a patient without seeing it. In the first place he should stop the salting. A little salt may be of use, but any plant can be pickled to death. Secondly, we should stop the slops. It is a mistake to suppose that quince-trees do best with their roots in a bog. Thirdly, we should, between now and leafing time, spread around them a liberal amount of stable manure. Fourthly, if they have grown wild and crowded, thin out so as to leave the branches open enough for sun and air to enter. We are not informed whether the quinces are trained to a tree-form or have made a dense bush. Trees of the age mentioned should be bearing fair crops. We have them in bearing 3 and 4 years from cutting.

Sowing Clover-Seed.—"G. C. A.," Chainpoce, Oregon. Where there is frost during the winter season, clover-seed must not be sown in the fall. In those parts of the Pacific Coast where frost does not occur, it may be sown with the wheat in the fall.

Using Cotton-Seed.—"E. H.," Madison, Ga., writes that he has read much of the great value of cotton-seed as feed for stock; but an impression prevails in his locality that it is injurious. He desires some light on the subject.—Cotton-seed is a valuable food, containing, as it does, much oil and albumen. But the hulls are indigestible and injurious when the seed is fed whole. The pressed cake, which is deprived of the greater portion of the oil contained in the seed, if free from hulls is even better than the whole seed, being more digestible.

The seed when the cake-meal is not obtainable should be freed from the husk or hull, for which purpose a very cheap and excellent machine is now made. The seed in process of hulling is broken up considerably, and if ground or cooked might be fed very usefully to all sorts of stock. It is safer to commence feeding it very gradually. The broken hulls make an excellent fertilizer.

Another Fence.—"M. N. B.," asks advice about a wire-fence consisting of two strands of wire at top and bottom, with three-inch palings interwoven, supported by posts 8 feet apart.—Such a fence would doubtless be an excellent one against stock, but whether it is patented or not is probably more than a patent lawyer could tell without examining the list of something less than a thousand patent fences.

Ditching Machine.—"G. A. S.," Boston, wants a machine for digging drains.—We know of no machine by which drains can be dug in soil mixed with stone. Ditches have been dug successfully by machine in soil perfectly free from stone, but we do not know the makers' names.

Cutting Feed.—"Inquirer," Lennoxville, P. of Quebec, asks the following questions: 1st. Will it pay to cut feed by hand and use corn-meal, with labor at one dollar per day and butter at 20 cents per pound. 2d. What size cutter would be needed and which is the best? 3d. Will young cattle and cows digest oats and peas fed in the straw? 4th. Should it be cut; and should it be harvested before the grain is ripe? 5th. Are peas best sown alone or with some other grain? Replies.—(1st) Yes. (2d) Gale's copper strip; size depends on number of stock; for 10 head a \$12 one would do. (3d) No. (4th) Yes. (5th) Best sown with oats.

Thrashing-Machine for Cider-Mill.—"G. W. M.," Gibson Co., Indiana, suggests the use of a one-horse thrashing-machine to crush apples for cider; he asks how it would do, and how should the concave be arranged.—The principal difficulty would be in the rapid motion. The teeth and concave would need no change, but where the apples would go to when they emerged would be a serious question, and would need experimenting on.

White Butter.—"E. C. C.," Hartford Co., Md., has a heifer that makes very pale-colored butter with an unpleasant taste, and asks if there is any remedy.—The writer once owned a cow that had a similar fault, but could hit on no plan to remedy it altogether. Her butter was never good for anything, and after many experiments she was fattened and sold. If any of our readers have had better success, and can help "E. C. C.," we shall be glad to hear of it.

Corn-Stalks and Corn for Hogs.—Wm. J. Lewis, Clinton, Ct., asks how many six-month-old pigs in fair order can be fattened on 1,000 bushels of corn and cob ground together, and the stalks therefrom.—We would not advise this feed for fattening pigs; it would do for store hogs, but fat hogs can only be profitably made on grain alone. Ten bushels of shelled corn ground into meal should fatten one hog in fair order at the commencement, and if it is kept in a good warm pen. If cooked or scalded, and fed cold, one fourth less feed would be sufficient.

Gas-Lime.—"V. F.," Morristown, N. J. Gas-lime is not worth seven cents a bushel. It is dear enough as a gift, for it is very poor stuff, and when fresh injurious. Fresh lime at 25 cents a bushel is cheaper than gas-lime for nothing.

Wire-Worms.—"C. A. J.," Hudson, Mich., writes, "What are we to do with the Wire-worms? They have destroyed our corn and are eating up our wheat."—There are two families of wire-worms: one consists of the larvae of the *Elaters*, or Snapping Beetles; the other, not an insect, but an invertebrate animal, is the *Julus*, of both of which families there are several species, all very destructive, however, to the roots of grass, corn, or wheat. Ammonia is the best remedy to apply, and a dressing of guano would probably be the best shape in which to apply it. Soils filled with vegetable matter are most infested, hence lime regularly applied has been found a preventive. In fields regularly limed it is rare that much injury is done by any of the wire or cut-worm tribes. Summer-fallowing is also a remedy.

On the Wrong Side.—"A Friend" in Downingtown, Pa., calls our attention to the fact that in the first-page picture in December, the driver is on the wrong side of the oxen. We discovered it ourselves when it was too late. It happened in this way: In piloting, the

engraving is reversed, and what on the block is right-hand is when printed on the left-hand. Sometimes the artist forgets that his drawing will be reversed. Everything looks right upon the block, and when it is printed he is much mortified to find that it is all wrong.

Grease for Cog-Wheels.—"G. C. A.," asks in what proportion tallow and black-lead should be mixed together when used to lubricate the gearings of thrashing-machines.—The tallow is used only to cause the black-lead to adhere to the gears, therefore no more than suffices for that purpose is needed.

Horse Distemper.—"J. B. C.," Sherburne, Mass., sends his experience about the horse disease now so prevalent. He has had 46 years' experience with horses and cattle. He says the cause is ill-ventilated stables, and exposure while hot to rain, cold, or storm. He gives a mash with a table-spoonful of saltpeter, one of sulphur, and a quarter of a pound of Glauber's-salt, with feed of potatoes cut fine, keeping the horse warm and free from cold drafts. A preventive, he thinks, would be to wrap the bit around with some tow, steeped in a solution of assafoetida when the horse is driven out. We do not approve of nostrums in any way, and recommend all treatment of sick animals to be based on common-sense. The above treatment is judicious, although good care and protection from cold, with clean and airy stables, will be as good a preventive as the assafoetida.

Windmills.—"Wm. V. S. B.," Sangerites, N. Y., wants to build a windmill with the help of a carpenter; and wants a book with directions.—We know of no book containing instructions. In the *Agriculturist* for May, 1872, page 177, was given an engraving of a simple windmill, which might be made by any mechanic. The size could be enlarged to a power equal to one horse. The arms would have to be about 8 feet long in that case.

A Wet Cellar.—"Jas. S.," Warren Co., Ohio, has a wet cellar, and proposes to cement it on the bottom and at the sides, and asks advice.—The remedy is doubtful. If the water is only in very small quantity, it might answer temporarily, but the cement would certainly give way in time. If there is no chance for drainage any other way, we would dig a well outside the cellar several feet deeper than the floor, and make a drain around the cellar on the inside and fill it with broken stone, and connect it with the well. In the wet season the water can be dipped out of the well.

A Leaky Cistern and Wet Cellar.—"Subscriber," Taunton, asks: (1st) How can I stop my cistern, cement-lined, from leaking? (2d) What would be the best drain to take water out of my barn-cellar? (3d) How much fall in 100 feet would carry off the water?—(1st) The cistern is imperfectly cemented; empty it of water and apply a fresh coat, brushing it well into any cracks that may be seen. Possibly the cement is not of the right kind. Hydraulic cement must be used, and not common lime. (2d) Dig the drain and lay drain-tile with collars. (3d) One foot in 100 is ample fall.

Pasture for Bermuda.—"J. M. J.," Halifax, N. S., desires to get a crop suitable for pasture on some light land in Bermuda.—We would suggest red-clover, treated with 100 pounds of ground gypsum per acre, when about three inches in height. Crab-grass is a species of *Panicum*, and not *Agrostis*. We shall be glad to hear from Bermuda, as intimated.

Cement Pipes.—"J. C.," Middletown, Iowa. Cement pipes eighteen inches in diameter may very easily be made in molds similar to those figured in the *Agriculturist* of November, 1872. The material to be used is exactly the same as there described.

Manure for Sweet-Potatoes.—"R. H. M.," Cool Spring, Delaware, is short of stable manure; he asks which would be the best substitute as a fertilizer for sweet-potatoes, bone-dust or fish-scrap.—Fish-scrap would probably be the better of the two.

Jersey Bulls—Correction.—Mr. J. Carter Brown, of Rhode Island, calls our attention to an error inadvertently made in an article in the November *Agriculturist*, headed "Two Jersey Bulls." We there stated that the Jersey herd prize at the New York State Agricultural Fair, held at Elmira in 1872, was "won by Mr. William Crozier in competition with a herd imported directly from the farm of Queen Victoria." We intended to say that it was won in competition with a herd which contained a heifer imported directly from the farm of Queen Victoria; and this, we believe, is strictly in accordance with the facts as gathered from the list of entries. We regret the little oversight.

FREE.—The very Best Table Cutlery—Silver-plated Table Articles—Gold Pens—Indelible Ink—Children's Toys—Flower and Garden Seeds—Floral Sets—Sewing and Washing Machines and Wringers—Knitting Machines—Melodeons—Pianos—American Watches—Single and Double Barrel Guns—Astral Oil-Pumps—Family Weighing Scales—Dictionaries—Books—Toy Steam Engines—Toy Steam Boats—etc., etc., etc., are among the things

that we are distributing very largely all over the country to our friends who send in clubs of Subscribers. Some report getting as many as fifty subscribers a day. Others get one, two, three, or more, as opportunity serves. Some make this their sole business, and sell the premiums received, and thus get large wages. There is no humbug or clap-trap about this. At least *Thirteen Thousand* persons have received these premiums with great pleasure, and still, not one in ten of those who ought to read the *American Agriculturist* and *Hearth and Home* for their own pleasure and profit, is yet supplied with it. So there is abundant room for thousands of others to obtain these valuable premiums. This work can go on all winter. Full particulars will be found in the Advertising Columns, pages 33 and 34.

Tobacco Crops.—Along the Connecticut River the tobacco crop has been very heavy, and of excellent quality. Farmers speak of perfect leaves thirty-nine inches in length and twelve in width having been produced.

"Give us Gravel, or we Die."—"C. C. R." sends us some "fowl fables," but our columns have space only for the moral, which is that after many hens had died, having been doctored for pip, gapes, worms, thrush, and all other diseases found in the books, finally it was discovered that what was the matter was simply want of gravel; of which all may take a note.

Prospects for a Dairy.—"E. H. M.," Canton Co., Pa., desires to enter into the dairy business, and asks some questions relative thereto, to which we reply: That milk may be conveyed ten miles by wagon without difficulty if it is in close cans which are kept quite filled, so that there is not much dashing about, which tends to sour the milk rapidly; by railroad it may be conveyed forty or even a hundred miles very well, without too great expense for freight. Cows may be kept in the stable or yard and fed there throughout the year without injury, and with advantage, if they have an hour's exercise in a pasture twice a day. The best feed is grass, green oats and peas, clover, and corn-fodder in the summer, and clover hay in the winter, with carrots, sugar-beets, bran, and corn-meal in the winter. The milk business, all things being equal, gives less labor and more profit than any other form of dairying.

Corn-Husking Machine.—"H. E. C.," Oxford, N. H., asks if there is a machine that will husk corn.—Phillips's corn-husker does this work in a very rapid and cleanly manner. The stalks are fed into the machine, and the ears are separated and the husks stripped off at one operation. It is an invention well worthy of examination by those interested.

Bone-Flour and Plaster.—"Ohio," Centralia, Ill., asks where bone-flour and plaster can be procured in the West.—The Michigan plaster, mined at Saginaw and Grand Rapids, is to be procured in Chicago, as is also ground bone. If farmers will attend their county fairs and keep their eyes open, they will see samples of all these things exposed for their especial benefit, and they can see the dealers themselves on the ground, who will give them all needed information. Farmers do not seem to think that these men attend the fairs for this express purpose.

A Question of Profit.—"Z. F. H.," Makanda, Ill., writes as follows: A stall feeds *B's* cattle: what proportion of the gain in weight should *A* have?

With that gain for his share, would it pay *A* to feed unhulled cotton-seed, cooked, at \$15, bran \$12, hay \$30, and corn-meal \$25 a ton? What would be the best selection of feed to make from this list for profitable feeding in money and manure? What amount of floor space is necessary for one head of stock, and what the safest and cheapest fastening?—In all these questions, a great deal depends on the kind and condition of the cattle; if they were in good condition it would not pay *A* to undertake to feed them; if poor, he would make money by taking the gain for his share, and so would *B* by reason of the more marketable condition of his stock. We would rather feed hay and corn-meal at the prices given, than any of the other materials; it would hardly pay to use any but concentrated food, for much profit lies in the quickness of the operation. The cotton-seed if hulled and ground would be a valuable help to the meal and hay and valuable in the manure, but with the husk it is not safe feed. If the cattle are large, five feet in width is not too much floor space if stalls are used; if not, four is enough. Stanchions are safest and best on the whole.

Where shall we Stop?—Truly this is a land flowing with milk, if not with honey, if the "plain story of a truthful James" must be accepted, as a correspondent, "Q.," who hails us from Colorado Territory, says it must. A native cow gives fifty-four quarts of milk in twenty-four hours at three milkings. If this is true, it must be due to the irrigation commonly practiced in Colorado Territory.

Beekeeper's Magazine.—This is an illustrated monthly, published by H. A. King & Co., Murray st., New York, and devoted to the interests of bee culture. It promises, to use its own words, to be "a storehouse of information for all engaged in this pursuit." Amongst the names of the editors that of Mrs. Ellen S. Tupper, of Iowa, appears; this of itself will be sufficient to show that it is to be a practical work. Amongst the contributors we perceive the name of M. Quinby, also a well-known "beeist."

Rule of Three.—"J. F.," Natick, Mass., propounds the following question: If corn-meal is worth 1½c. per pound, what is skimmed milk worth per gallon for feeding pigs?—We would advise "J. F." to feed both the skim-milk and corn-meal, as the pigs will thrive better on this mixed feed than on either separately, and not endeavor to settle the question by means of figures.

North Atlantic Express Co.—Having been at times obliged to pay for a small parcel from Europe twice the real value of its contents, we feel that we do the public a service by making it known that there is now an Express Company that transmits parcels either way for something like a reasonable charge. We wish it abundant success.

Peach-boring Beetle.—A correspondent in Maryland sends us a small beetle which does much damage to the peach-trees. It is a species of *Coryphalus*, and our entomological contributor, Mr. Riley, promises us an article upon it in November.

Osage Orange.—"E. E. W.," asks if Osage Orange is hardy in Central Iowa.—In some localities it is.

Vinegar-Making.—T. Paulsen, Portland, Oregon. It is true that we have warned people against buying recipes, but the advertisement "Vinegar-Making in 10 Hours" refers to an apparatus constructed according to well-known principles. We do not advertise things of this kind without first investigating them.

Fistula.—"T. W.," Tuscumbia, Ala., asks how to treat fistula in the shoulder.—If there are several openings, the dividing walls must be cut so as to connect them; and a solution of five grains of corrosive sublimate to an ounce of water should be injected with a glass syringe until these walls are sloughed away; the wound is then healed from the bottom by washing twice a day with a solution of one dram of chloride of zinc to a quart of water, keeping a plug of lint in it until the bottom heals. If the bone is diseased, there is no help but in a surgical operation.

The Right Doctrine.—A correspondent at West Point, Wis., writes: "Farming is slowly rising from the old beaten paths. Our lands have been cropped with cereals until the returns are so small that farmers from sheer necessity have to return something to the soil. Clover is doing wonders for us, and were it not for wolves and dogs sheep would be our best stock, because we get so much money in so little space and weight that transportation is not so burdensome; while on the other

hand the cost of getting the heavy cereals to the sea-board almost eats up the proceeds."—This is the right doctrine. Clover and sheep, corn and pork, grass and beef, will not only improve the fertility of the soil, but in all sections distant from market will afford the greatest profit. We have advocated this doctrine for years, and are glad that its truth is being recognized by intelligent farmers.

Washing Wool.—"F. C. W.," Lebanon, in reply to "Maryland," who asks (*June Agriculturist*) for a method of washing wool, says that salt is preferable to soap for this work, that it leaves the wool of a good color and very loose, while soap has a tendency to cause it to "mat."

Need for Draining.—If we recount the troubles and losses which result from a want of drainage, it will be seen that a wonderful balance of loss lies on the side of undrained fields. There are late plowings and sowings and plantings in spring consequent on wet fields; poor crops and ill-conditioned soil resulting from enforced plowing of land when in an unfit state for the plow; drowned-out crops in wet seasons, and parched crops in drouths, for, strangely enough, both of these extremes occur in undrained soils more than in drained ones; wet pastures, pouched and water-soaked, filled with sour, coarse grass and weeds unfit for the food of an animal giving milk; cattle with diseased feet, or sick or dying from disease engendered by unwholesome pasture, or by drinking stagnant surface-water; sheep with foot-rot, liver-rot, dysentery, or other deadly complaints, resulting from the to them fatally destructive moisture of their feeding grounds; with, finally, crops heaved out by frost, meadows killed by freezing or by a covering with ice, and last, but not least, the miasma which arises from undrained ground, and which affects the health of the farmer or his children. Then does it pay to drain?

Farm Mills.—Charles Beecher, Newport, Fla., wants to know where the mills figured in the *August Agriculturist* can be obtained, and if they will grind sufficiently fine for domestic use. The particular mill there described was one constructed for the writer of the article; the stones were purchased in Chicago, and the framework was home-made. Similar mills, which can grind fine enough for family use, but do not bolt or sift, can be bought in New York and other large towns of almost any of the dealers in agricultural implements.

Emasculation.—"E. E. W." wants to know if it is quite safe to perform emasculation at any season of the year.—No. There are periods when it is safer than at others. Horses should not be operated on during hot weather, while with hogs hot weather is not considered injurious. If it is necessary to operate during fly-time, pine-tar will keep off flies and assist in the healing process. It is better to operate on lambs when they are very young, from twenty-four hours up to a month old, and on pigs when they are from two to six weeks old. Calves and colts may be castrated late in the fall.

Fresco for Walls and Ceilings.—"J. F.," Northampton, Mass., wants a good recipe for fresco which an ordinary workman could apply.—The difficulty here is not the want of the coloring, but the skill in laying it on the walls or ceiling. No ordinary workman would be able to do this, it needs one who has learned the art by long practice. Any of the mineral colors which are not affected by lime may be used, but no others. The groundwork also needs particular treatment, which only an expert can give.

How to Make a Good Cow.—"S. K.," Bedford Co., Pa., has a heifer, twenty-two months old, which will have a calf next February. He fears this early milking will tend to injure her as a cow, and wants advice as to the proper treatment to make her a good cow, as good as her mother, which has made 13¼ pounds of butter in a week.—It is not in the power of a man nor of any particular treatment to make a good cow out of a poor one, but a good one may easily be spoiled by improper treatment. This heifer should not be forced too much. The best of hay, with (when there are no roots) four quarts of bran and one quart of crushed oats per day, to within a month of her calving, when the bran and grain should be gradually dropped off until a week after calving, when it may be gradually given again, would be quite as much as she would bear, and possibly too much. She must be watched, and not allowed to get into a high condition, but kept only in fair growing order. If she gets fat the oats should be discontinued.

Salt for Poultry.—"L. H.," Montgomery Co., Pa., asks if salt should be given to poultry.—No.

Premiums.—If you would know all about them, see page 33.

Beef-Scraps for Manure.—H. B. Peck, Ct., asks the value, as manure, of beef-scraps left after the tallow is pressed out, as compared with bone-dust. — It is a much more active manure than bone-dust, and when immediate effects are wanted, if ground and applied at the rate of 300 pounds per acre, would be worth as much as bone-dust; but not so on all crops or where a lasting manure is needed. It contains a large proportion of nitrogen, and its market value would probably be, when dry, \$35 per ton.

"Non-Sitters" Sitting.—"S. W. W.," Flushing, L. I., has a White Leghorn hen, usually called a "non-sitter," that has hatched and brought up this season a brood of chickens. Nevertheless, White Leghorns are non-sitters; but the rule has exceptions now and then, as all others have.

Spent Lime.—"W. S.," Oswego, N. Y., sends a sample of lime which has been used in the manufacture of corn-starch, and asks what are its fertilizing properties for market-gardens. Also the value of gas-lime.—This lime comes in the state of a paste which, on drying, would form hard lumps. This would be objectionable to its use as a fertilizing agent, for which purpose it should be in the finest possible state of division. Its real value at any rate is small; it contains a small portion of vegetable matter, and if lime at the kiln can be purchased for 15 cents per bushel it would be cheaper than this waste stuff at nothing. Otherwise, on clay soils it would be worth hauling and mixing with the soil at the rate of 100 bushels per acre. Gas lime in a fresh state is absolutely poisonous to vegetation, and when old is about equal to the above-mentioned waste.

No Herd Law.—"A. R. C.," Newton, Kansas, wishes to correct what may probably be an erroneous impression arising from a statement made by F. Phillbrick, in the *Agriculturist* of January, 1872, regarding the herd law. Unfortunately, or otherwise, as the case may be, that law has been pronounced unconstitutional by the Supreme Court, and consequently there is no herd law in Kansas, nor will be until one is passed by the State Legislature.

Apples for Illinois.—At the Illinois State Fair, the following six apples were unanimously recommended for Northern Illinois: Maiden's Blush, Suow, Dominic, Jonathan, Ben Davis, and Willow Twig.

Rooks County, Kansas.—Wm. Lawrence, Ball City, Kansas, sends us an interesting letter relating to the western part of that State. It is the old story of immigrants flowing in and occupying the country, and selecting all the claims which have water and timber. It is in the buffalo-grass region, with a soil of rich sandy loam, especially favorable to grazing. The winter pasture generally is ample; even in the unusually cold winter of 1871 there were only ten days when hay was needed, and the bulk of the losses occurred from want of water and not from want of feed, the streams being frozen and no places being opened for the stock. He advises energetic young men with small capital to choose this as their home.

Chestnuts in Iowa.—D. W. Kauffman, of Des Moines, tells of healthy chestnut-trees from seed planted six years ago, and cultivated four years; they are sixteen feet high.

California Chestnuts.—The Chestnut of the Pacific Coast is the Golden-leaved *Castanea Chrysophylla*, so called because its evergreen leaves are yellow on the under side. It is, however, more nearly related to the Chioquapin than the Chestnut, it producing but a single nut in a burr. It has heretofore been recorded as a small tree, but Dr. Kellogg reports to the California Academy of Sciences that he has discovered trees 100 to 200 feet in height and four to six feet in diameter, with a clear trunk of 60 or 70 feet.

Western Pennsylvania Poultry Society will hold its annual exhibition at Pittsburgh on January 14th-18th. C. B. Elben is Secretary.

Molasses for Cattle.—Successful cattle-feeders in Europe give molasses constantly to fattening cattle and milch cows. A large German farmer gives a pint a day mixed with oil-cake to his cows, largely increasing their milk. We know one very successful American farmer who gives his cows molasses in their feed with very good results.

Dogs.—A "Farmer" wants to know what can be done about the dogs. He and his neighbors have lost their flocks, and although their country is a sheep coun-

try, they are unable to follow sheep-raising.—We can see no help for the shepherds of this country, unless in the proper restriction of the dogs. If dogs must be kept as pets, or for guards, they should be kept chained up; if they are allowed to run as wild animals, they should be treated as such, and shot on sight when out of their proper bounds. If male dogs were highly taxed, or the bitches were prevented from unrestrained reproduction by the same methods which keep other animals in due bounds, the vagrant dogs without responsible owners would soon decrease in number. Farmers' clubs and associations should ventilate this question.

Egg-Plants in England.—A correspondent of the *Gardener's Chronicle* says of the egg-plant: "A very handsome and useful kitchen vegetable, perhaps about as wholesome as the cucumber, and used much in the same way for pickling." What hope can there be for a country that knows not how to cook egg-plant? It was well that this writer added: "But on the dangerous ground of giving any directions for cooking, I dare not enter." We should say so.

Boiling Cider.—"C. P. F.," Grand Rapids, Mich., asks which is the safest for boiling cider, a vessel of copper or of brass.—Brass is less liable to oxidize than copper, but either should be made perfectly bright and clean before using.

Renting a Market-Garden.—"Subscriber," Cleveland, Ohio, asks if we would advise him to rent a market-garden by the year, and if not, why not. —Decidedly not; and for the reason, that no one can profitably work a market-garden without expending much money and labor in improving the soil, and a year is too short a term in which to recover the expenditure. A lease of five or six years is short enough for market-gardens.

Gang-Plows.—"D. B. J.," wants the best gang-plow. The use of gang-plows is not nearly so common as it might well be. In California they are largely used. In England also they are quite common, and double-furrow plows drawn by three horses are found to do the work of two two-horse plows and two men with great ease, and a large saving of expense. The principal difficulty in their introduction here, is the cumbersome frame attached to them, which makes them unhandy to use. The best and lightest double-furrow we have seen used, is of English make. Makers of American gang-plows would do well to consider this want here expressed, and by meeting it promptly encourage the use of these implements.

The Rural Sun.—The agricultural papers which have appeared and disappeared in the Southern States within the past six years are many. We have seen none that editorially or mechanically gave better promise that it had come to stay than does the Rural Sun, a handsome weekly published at Nashville, Tenn.

Falling off of Fowls' Feathers.—F. H. Graves, Washington, Iowa, wants a reason for the falling off of the feathers from the necks of his "Houdans." It is a continual trouble, and does not arise from molting or feather-eating.—Who can shed light on this matter? We would suggest that it is caused by the heating of the system from having too much grain and not sufficient green vegetable food. We never knew fowls which had access to clover or grass fields to be troubled in this way, but those which are cooped up in runs often suffer from this disorder. Plenty of chopped cabbage would probably meet the difficulty.

Tule Potato.—The California papers are talking about a tuber found in the tule swamp lands, which they call Tule Potato. It is the tuber of an Arrow-head (probably *Sagittaria variabilis*), which is also common in wet places all over the country. Our California friends have nothing new this time, as Kalma gave an account of it a hundred years ago, and says that the East Indians used it for food, and called it *Kalmuss*. It is the *Wapato* of the North-western Indians, who, as well as Chinese and swine, are very fond of it.

Farmers' Club in California.—E. S. Holden, Stockton, Cal., sends us reports of the meetings of the San Joaquin Farmers' Club, of which he is president. The club numbers 124 members, and is what he calls a live institution. The mode of procedure in this club is for members to note and record everything that occurs in their daily operations, the experiments made, the system under which they work, and the results they achieve, in the field, garden, and orchard, and amongst their stock. These matters are introduced into the meetings and give rise to comparison of notes and results, discussions as to differences of methods, and so forth, and any new or worthy idea is at once common property.

We have before this noticed the proceedings of this club as reported in their local papers, and have often thought that some far more pretentious but far less useful farmers' clubs could profitably study the words and ways of these San Joaquinians.

Who? Where?—An unfortunate who has neither name nor place of abode, if we must believe his letter, asks how to work up eight thousand sheaves of grain into manure.—If he has not enough stock to consume the grain when ground coarsely and mixed with cut straw for feed, bedding them with the rest of the straw so as to make all the manure possible, sufficient should be purchased for this purpose. The best kind to buy are thrifty young cattle or cows, which *always* sell low in the fall and higher in the spring, and thus pay for their feed. But not knowing where this man lives, how can we properly advise him?

Value of Good Stock.—A Wisconsin farmer has sold this season one yearling and two two-year colts for \$1500. The sire was a Hambletonian horse, but otherwise these colts cost their owner no more than three young scrubbs would have done. The best pays.

Where Shall he Go?—"J. G. E.," Bergen Point, N. J., has \$500, is single, and understands farming, and would go to a mild climate where there is rich prairie land.—Kansas would probably suit "J. G. E." best; he should write to Land Commissioner Kansas Pacific R.R., Kansas City, Mo.

Co-operation.—A California Farmers' Club proposes to raise capital amongst themselves to set in operation a business for disposing of their own produce for their joint benefit, and owning their own warehouses and ships needed for this purpose. "Man proposes," but a natural law disposes of this matter in such a way as to leave little hope of success for these California farmers in taking this business upon themselves.

Drive-Well.—A "Subscriber" asks if he can have a drive-well put down in sandy ground, and through quicksand.—Yes; but the pipe must pass through the quicksand into gravel, or else the well would be choked and useless. These wells are peculiarly fitted for such ground as this.

Underground Treasures.—This is the title of a little work, by James Orton, A.M., which describes 73 of the more useful and common minerals found in the United States, and gives simple methods of determining their names and character. As a first step in mineralogy, and as a means of interesting young people of both sexes in the pursuit of this engaging science, this little work will be found of great value. Farmers' boys and girls having a desire to know something of the minerals so plentifully existing in the soil and in rocks, can make this a hand-book of preliminary instruction; and few who do so will feel inclined to stop their investigations when they have exhausted its pages. Published by Worthington, Hartford, Ct., and Parker & Co., Chicago.

Sweet Lard.—L. F. Hopkins writes: "It may be useful to some of your readers to know that lard may be kept perfectly sweet and free from any strong or rancid odor, for any length of time, I guess, by putting into each kettleful while 'rendering' a handful of red or 'slippery' elm bark. Treated thus, it has a sweet and not unpleasant smell in the hottest weather, even when not kept in a cellar."—This is a very old plan, the knowledge of which, if we mistake not, was derived from the Indians, who kept their deer-fat in this way. We have never tried it, but have been assured of its utility by others besides Mr. H. The inner bark only is used.

Hogs and Sheep for a Mountain Farm.—"T. W.," Alabama, wants the best hogs and sheep for a mountain farm.—There can be none better than the native sorts crossed with males of the Berkshire or Essex swine, and the Cotswold sheep. These will give fine grade hogs, and a grade of sheep with combing wool and heavy carcasses of mutton. For breeders' names, see our advertising columns.

The Swine-Breeders' Convention.

The National Convention of Swine-Breeders was held at Indianapolis, Ind., on November 4th. The meeting was perfectly harmonious; no jealousy or conflict of interests marred the result, which is an attempt to place swine-breeding on a substantial basis entirely accordant with its importance as a great agricultural pursuit. The movement, which our readers will remember was originated last May by Col. F. D. Curtis, of Saratoga Co., N. Y., has accomplished several reforms in swine-breed-

ing which will tend to reduce to some sort of order and system what has been hitherto a haphazard and altogether irregular business.

The question "What constitutes thorough-bred swine?" has been settled: and had the Convention achieved nothing beyond this, its work would have been worth all the cost. The committee appointed to report upon this question decided that "only such breeds should rank as thorough-bred as are recognized in authentic history as of sufficient remote origin, when bred in a line, to result in the establishment of a fixed type, capable of duplicating themselves with uniformity. The committee also recommended that the leading breeders of pure-bred swine form breeders' clubs, for the purpose of establishing a herd registry, after the plan adopted by breeders of thorough-bred cattle, in order to secure greater uniformity, and to perfect as soon as possible the various breeds."

This decision rules out Poland-China, Chester Whites, Improved Cheabires, and some other so-called breeds, which must undergo further close breeding and careful management before they can be entitled to the distinction of thorough-bred.

A scale of points was also adopted for the guidance of judges at fairs in making awards. They are as follows: Perfection, scale 100 points, to be divided as follows: Back, 10; long ribs, 8; short ribs, 7; shoulder, 8; ham, 12; length of body, 6; flank, 6; twist, 6; snout, 4; jaw, 3; face, 3; ear, 2; neck, 4; belly, 4; skin, 5; hair, 3; bone, 3; legs, 3; feet, 2; tail, 1.

The committee appointed to report on what is the most profitable hog for the raiser, packer, and consumer did so as follows: "The hog must have a small, short head, heavy jaw, and thick, short neck; ear small and thin, and tolerably erect, not objectionable if it droops slightly forward; must be straight from neck back to flank; must let well down to the knees in brisket; of good length from head to tail; broad on the back; ribs rather barrel-shaped; must be slightly rounded and curved in the back from the shoulder to the setting on of the tail; tail small; long in the ham from hock to letting off at loin; shoulder not too large, only large enough to give symmetry to the animal; ham broad and full; hair smooth and evenly set out; skin soft and elastic to the touch; legs short and small, and well set under; broad between the legs; good depth between bottom and top of hog; pleasant and quiet disposition; should not weigh, as a general rule, more than 300 or 400 lbs. grows at twelve to eighteen months, according to keep; color may be black or white, or a mixture of the two. The hog should measure as many feet from top of head to setting on of tail as he does around the body; and as many inches round the leg below the knee as he does feet in length and around the body; and the depth of body will be four fifths of his height."

When the value of the hog crop of this country is considered, the importance of the work accomplished will be better realized; and the sooner pork-raisers go to work to carry out the ideas developed, and bring their hogs up to the required standard, the sooner will this great interest attain full and profitable success.

The Shorthorn Convention.

The Convention of Shorthorn breeders of America met at Indianapolis on November 27th. It was attended by many of the principal breeders of the United States and Canada. It resulted in the formation of the American Association of Breeders of Shorthorns; of which any breeder of these cattle, either in this country or Canada, may become a member on payment of \$2; also of a Board of Directors, for the purpose of carrying into execution the purposes of the association, one of the chief of which is the protection of the public against frauds in pedigrees, and the exposure of parties who may be guilty of the same; and further, in the adoption of a set of regulations for the better management of the Herd-Book, and the correction of errors and frauds which may have occurred therein heretofore. The officers of the Association are as follows: *President*—Dr. A. C. Stevenson, of Indiana. *Vice-Presidents*—1st. Wm. Warfield, of Kentucky; 2d. Hon. David Christie, of Ontario. *Secretary*—B. H. Campbell, Batavia, Ill. *Treasurer*—John G. Dunn, of Ohio. *Directors*—R. R. Seymour, Chillicothe, Ohio; W. R. Duncan, of Towanda, Illinois; Edward G. Bedford, of Paris, Kentucky; Dr. Manly Miles, Lansing, Michigan; George Murray, Racine, Wisconsin; Claude Matthews, Indiana; Samuel Campbell, N. Y. Mills, New York; John H. Bacon, Worthington, Iowa; C. T. Quisenberry, Missouri; Charles E. Coffin, Maryland; Josiah Fogg, Massachusetts; Stephen White, Ontario; M. H. Cochrane, Quebec; William S. King, Minnesota; Mark S. Cockrill, Tennessee; George W. Glick, Atchison, Kansas; E. L. Emery, Omaha, Nebraska; Warren Percival, Maine; D. S. Pratt, Vermont.

The rules for the future management of the Herd-Book adopted are here given, viz:

Resolved, That for the better management of the American Herd-Book in the future the Committee beg leave to make the following recommendations:

Resolved, That in the record, the name of both breeder and owner shall be given, together with the date of birth and the color of the animal.

Resolved, That the ancestors of animals shall be traced on both sides to imported animals or to those heretofore named in the American Herd-Book, with correct pedigrees, before they can be entitled to registry.

Resolved, Family names should be dug to breeders first claiming that name in some agricultural paper of the United States, or in the American Herd-Book.

Resolved, That the person under whose direction the animals are coupled should be recognized as the breeder of their produce.

Resolved, That a committee shall be appointed by the President and Directors of this Association, whose duty it shall be to examine all pedigrees claimed by any member of this Association as errors and forgeries, and when decided to be wrong, that the fact be published in a chapter of errors, to be added to each succeeding volume of the Herd-Book.

Resolved, That Lewis F. Allen be requested to continue the publication of the American Shorthorn Herd-Book, in accordance with the above recommendations.

It was also

Resolved, That in the estimation of this Convention, it is not only necessary in successfully breeding Shorthorn cattle that we should secure animals of fine form, pedigree, etc., but that they should be well fed and cared for. At the same time we look upon the practice of keeping up cattle without exercise, and feeding them to their utmost capacity, for show purposes, or sale, as injurious to their health and usefulness as breeders.

The following definition of the grades of stock, introduced by Prof. Miles, of the Michigan Agricultural College, was adopted by the Convention: Pure-bred, full-bred, thorough-bred, as animals of a distinct and well-defined breed, without any admixture of other blood. Cross-bred, animals produced by breeding together distinct breeds. Grades, as the product between a pure-bred and a "native." High grades, an animal of mixed blood, in which the blood of a pure breed largely predominates.

Some formal votes of thanks and mutual congratulations were then indulged in, and the Convention adjourned.

After the adjournment of the Convention, the President and Board of Directors, as provided by the constitution, held a meeting and appointed W. R. Duncan, of Wisconsin; Robert G. Dan, Ohio; the Hon. David Christie, Canada; Thos. E. Talbot, Missouri; and James G. Kennedy, Kentucky, a committee to investigate pedigrees. On motion, the Board fixed the first Wednesday in December, 1874, as the time, and Cincinnati, Ohio, as the place, for holding the next National Convention of Shorthorn Breeders.

Want of space forbids any lengthened remarks on the foregoing report, but we can not avoid congratulating both the breeders, and the publisher of the Herd-Book, on the harmonious result of this Convention and of the restoration of perfect confidence between them. That serious and well-founded complaints have been made of erroneous or fraudulent entries is admitted, and the existence of such complaints reduced in a measure the confidence of the public in the authority of the Herd-Book generally. That this difficulty will now be removed, the records brought above suspicion, and error and fraud hereafter prevented, so far as a watchful committee deeply interested to secure these results can accomplish it, are matters for congratulation. At the same time we can not ignore the fact that there will be at least some work cut out for the next Convention, for what has now been done is to some extent imperfect, and doubtless more remodeling will be necessary before perfection is reached.

The Late Rev. J. Knox.

The Rev. Jeremiah Knox, long so prominent as a horticulturist, died at his residence at Pittsburgh on Nov. 11th, last. Mr. Knox was born at Cadiz, Ohio. The son of a minister, he entered the ministry himself, and at the early age of eighteen was located at Pittsburgh as a preacher of the Methodist denomination, and long did useful work among the laboring population of that busy city. One of the pioneers in the cultivation of small fruits, he became at length the most celebrated of his time. Others, following in his footsteps, may have had more acres under cultivation, but none could have devoted themselves more heartily to the work. It is to the labors of Mr. Knox that we are largely indebted for the general taste for fruit-growing. He showed by his own experience that good cultivation of good varieties was the true road to success. Horticulturally, Mr. Knox will be remembered as the warm advocate of the

Concord as the "grape for the million," and for his success with the June Strawberry, which, until he ascertained its true name, he called "700." About two years ago he retired from active participation in business, and was quietly enjoying the fruits of his labors when a disease of the heart suddenly terminated his useful career. Up to the day of his death he enjoyed perfect health, and though 57 years of age his appearance was that of a much younger man. To us, who had known Mr. Knox so long and so well, his death comes as a personal bereavement, and horticulturists generally will miss his genial presence from their gatherings. Having rare gifts as a speaker, and speaking from the results of experience, he always commanded the respect of his hearers.

Horace Greeley.

The eulogy of Horace Greeley has been spoken, not only by press and pulpit, but in every household in the land, and while we will not at this late day give even a sketch of his remarkable career, we can not let the occasion pass without a brief tribute. While the name of Horace Greeley was, perhaps, oftener spoken all over the country than that of any other individual, it is to that class which reads the *Agriculturist*—farmers and those in rural life—that his death comes nearer than to any other. The son of a poor farmer, and his early life passed in a struggle upon the poorest of farms, the experiences of his youth were such as would have disgusted most persons with agriculture, but to Greeley they only showed how much the farmer's lot needed improvement, and in after-life his thoughts constantly reverted to the occupation in which he was born. When the Tribune became an influence, a large share of that influence was turned directly upon agriculture, and not only through its columns, but in numerous addresses, was he constantly appealing to the agricultural community. In later years he became an amateur farmer, and he one day in a week sought recreation in that which most regard as labor. The work "What I Know of Farming," which has been the theme of some merriment, was not intended as a farmer's hand-book, but it is full of useful suggestions. It was not possible for one of Mr. Greeley's powers of observation and activity of mind to tell what he knew of farming, or of any other subject to which he had given thought, without saying many things that would be useful to others. His rank as an agricultural writer will be measured by this work. The Weekly Tribune was the first paper of its kind to devote a considerable portion of its space to agricultural matters, an example which has been followed by other papers. In our last interview with Mr. Greeley, the conversation turned upon the principal agricultural writers of the day, and it was surprising to see how just an estimate he had formed of them.

Mr. Greeley was such a many-sided man that journalists, philanthropists, politicians, political economists, advocates of temperance, and others, each claim him as chiefest among them. While agriculturists will not accord him a high place as a leader, they will claim him as theirs by birth, and by a life-long sympathy manifested in various useful forms. Mr. Greeley's life may serve as an encouragement to every farmer's boy in the land; born as poor as the poorest of them, he unaided reached such a position that when death removed him from it a whole nation mourned. He was not very rich, he was not President, but he was better than these—he was kind, charitable, industrious, working for the general good rather than personal advancement, with sympathies for the humble and the oppressed, and with a courage that dared speak against whatever seemed to him to be wrong. These qualities gave him the affections of the people, and when he was buried, President, Governors, and those high in authority followed him to the grave; but still more than this, "the common people," the poor and lowly, thronged the streets in dense masses, for the distance of five miles, to pay the last tribute to him whom in life they familiarly called "Honest old Horace."

GRADE OR CROSS-BRED PIGS.—"L. L. P.," Ontario Co., N. Y., writes: "I have been breeding Chester White pigs, but they do not please me. I have also some Jefferson Co., or Cheshire pigs, but they are not satisfactory. The tendency of this breed, so far as my observation goes, is to smallness and weakness of bone. How would it do to cross them with the Essex?"—If the sows are healthy, of good size and vigorous constitution, a cross with a pure-bred Essex would give you fine pigs. There is much complaint of the Cheshires (not Chester Whites) degenerating. In-and-in breeding and

high feeding may have rendered them unfit for ordinary farm treatment. So far as our experience and observation extend, grade pigs are hardier, more vigorous, and every way better, when kept solely for producing pork, than the pure-breds. But you must always use pure-bred boars. This, with good, strong, vigorous sows and liberal feeding, is the great secret of success in raising good pigs for the butcher.

DUTCH OR HOLSTEIN.—Much misunderstanding occurs regarding the propriety of designating Dutch stock as Dutch or Holstein; just as some time ago, and even now, but in a less degree than formerly, the terms Jersey and Alderney were confused. It is now agreed that the general term Alderney, as relating to stock from the Alderney group of islands, shall be dropped, and the specific term Jersey, as relating to stock from the island of Jersey in particular, shall be adopted. This is correct. In the same manner these black and white cattle called Holstein or Dutch were originally Holstein, as the stock came from thence at first, but now, being more closely identified with Holland, and other breeds being common in Holstein, to call them Dutch would be a better distinctive nomenclature, although not more correct in reality. As a matter of convenience, and for the prevention of confusion, they should be simply Dutch, for before long we may have other Holstein cattle in the country, just as we have now Guernseys and the real and positive Alderneys, both of them, with Jerseys, having been known at one time under the general term Alderneys. In the mean time, we have Dutch or Holstein, or either, as the case may be, and the battle for name is now being fought out.

Ogden Farm Papers.—No. 35.

[This paper was written for December, but on account of the room required by the index, we were unable to publish it then. The matter is however equally seasonable now. Of course when the writer speaks of "this year," he refers to 1872.—Ed.]

What a wrong-ended year this has been! With us, at least, the early part was cold and dry, then came showers with intense heat, and then superabundant rain, too little sun, and a poor prospect for the growth of newly-seeded grass and winter grain. If we could have had these rains in April and May, and only a reasonable amount of water now, we should have had a much better stock of hay to commence the winter on, and enough fall feed for our needs. Now we have more than we need, and, as it has grown in the sunless, short days of a chilly autumn, it seems not to have the nutrient value of the shorter herbage on which "October butter" is generally made. In our own case, while the quality is fully maintained, the quantity has fallen off materially.

The cows are now (Oct. 20th) at pasture day and night, and on grass big enough for June. They fill themselves, look well, and seem contented, yet within a month (since we stopped feeding corn-fodder) they have fallen off quite one third in the amount of their butter. I think this would not have been the case if the autumn had been less wet, and a little warmer. Either this is the explanation, or the value of corn-fodder is more than even I, with all my faith in it, had supposed. I had never thought of valuing it above October grass, but the fact remains that when we gave up corn-fodder, and over-ripe at that, there was an immediate falling off in the butter product which was too great to be

ascribed to the effect of weather on the cows or to any other cause not directly connected with the food. Wheat-bran in increased quantity did not make up the deficiency, not even when a little corn-meal was mixed with it.

It is very difficult—practically impossible—to determine the cause of such a falling off in product, but I incline to the opinion that the change from corn-fodder to grass cut down the supply of butter-making material to such an extent that the subsequent increase in richness of food was not able to restore the yield. We shall have to wait for next spring's calving-time to regain our full product.

I had just written the foregoing when I received from my brother-dairyman, Mr. Mackie, of Massachusetts, the following statement:

"My milking herd for the week ending Sunday, October 13th, consisted of 13 cows and heifers. 7 of the cows were from 4 to 10 years old; 3 were 3 years old; 3 were 2 years old. Four of the cows and one of the heifers had calved in September; one of the cows is to calve December 14th, and two others are nearly dry. Total milk during 7 days, 1631 lbs.; average daily yield of milk per cow, 17¹²/₁₃ lbs. Total butter during 7 days, 89½ lbs.; average weekly yield of butter per cow, about 6½ lbs. About 18½ lbs. of milk have made 1 lb. of butter. Cows at pasture, with no feed but grass. Milk set in shallow pans."

Except in the amount of milk needed to make a pound of butter (about 8½ quarts) this is as good a return for this season as I have ever known. The cows are all pure Jerseys, of the best quality, and the grass on which they feed is that of one of the most fertile river bottoms in New England. It is only by keeping the very best cows, and by keeping them in the very best manner, that anything approaching this result is possible. That is to say, it is a result that is only possible to thoroughly good farming. But does not this very fact make it clear that we ought to have a good deal more thoroughly good farming?

Would it be too much to say that the very general "2-cents-a-quart" farming is not farming at all—only a sort of day-laborer occupation that brings a scanty subsistence as the reward of a very unintelligent exercise of the muscles, and a very much neglected investment of capital?

Mr. Mackie could very easily make a contract for his butter, for ten years to come, at 50 cents per pound—and for ten times as much as he can make. All last winter he sold at 75 cents per pound, and he sent it the whole length of Massachusetts for a market. At this price (50¢) his milk would bring him nearly 6 cents a quart, and his cows would surely yield him, in butter alone, not less than \$120 each per annum—and that without fancy prices, only what *really excellent* butter will bring at any time, if only the dealer can be sure in advance that it will be good.

As is very well known, the average return of the butter-making cows of the country (even of those kept on regular butter-dairy farms) is less than \$50 a head. Yet these cows, if well grown and well kept, cost as much to raise and as much to keep as Mr. Mackie's do, and there is as much labor and expense needed in the manufacture and sale of the butter. If fair wages were paid the farmer and his wife for the work done about the herd and in the dairy, and if the food were charged at half its value, it would be found that the \$50 cow would not more than pay expenses. The \$120 cow is of course a source of profit. Now, if a day-laborer and a dairy-maid are so

fortunate as to own a home of their own, and to earn their wages in an employment where they are independent and their own masters, they are to be congratulated on their good luck, but they are not to be praised as very intelligent and enterprising farmers; they are only industrious and worthy people, who do their duty as they understand it, but without understanding it very well.

It is sometimes asked, What would be the result if all the butter in the country were "gilt-edged"—would it not then all be sold at a "2-cents-a-quart" price? Perhaps it would; we shall never know. We may preach until the millennium comes, and we shall never do away with bad butter, nor with bad farming. The great mass of men in our craft, as in all others, are stupid and doltish. They only move in the wake of their more progressive brethren—perhaps scoffing as they follow—keeping relatively about so far behind all the time. There is no doubt that the butter of the world will be vastly improved as time rolls around, but there will always be the same relative difference between the "gilt-edged" and the "wheel-grease" that there now is—a difference that will manifest itself in every branch of farming. The mass of farmers will always be slow old fogies, sneering and jeering at "the likes of us" who write for agricultural papers, and holding back against all improvement as long as their dull ideas of their interest will allow; and the few will be ready and eager for all substantial improvement, and by their help the cause will get bravely on. Of course, my dear reader, you are one of the few whom I praise; the many, whom I don't, are only those who never read my papers, and whom I therefore run no risk of offending. I am glad to feel that in all my writing I am addressing myself only to the best men of the farming community, for it is only they whom it is worth while to address. A mining engineer once said to me, when we were discussing the ventilation of a coal mine, down which I proposed to force a current of air, "Air is like a rope—you can pull it, but you can't push it;" and he advised that the power be applied to drawing the air out of the mine, when all nature would be busy in supplying the abhorred vacuum. The same principle applies in agricultural writing. We may push at the grand community of "2-cents-a-quart" men, and they will budge never an inch; but if we apply our whole force to a good pull on the other end of the procession, and urge the leaders onward, the train will follow assuredly as that human nature is ever bent on keeping within sight of its bell-wethers.

I am preparing for a modification of my system of feeding, this winter, for the purpose of seeing the effect of bulkier feed in developing the digestive apparatus of my young stock. As I have before mentioned, I find that my two-year-old heifers, which last winter, when hay was dear and grain was cheap, had as concentrated food as I considered it safe to give them, are all rather gaunt, or deficient in "belly." I think that they have, as a consequence, given less milk this season than they otherwise would have done, because they have had less stomach-capacity than if they had, during the past winter, had more bulky food. I may be mistaken, and indeed my position is disputed by some intelligent feeders, with whom I have discussed the matter; but I have an idea that if an animal, during its first two winters, is kept mainly on hay and other coarse fodder, so that it will be

compelled to consume a large quantity in order to get its supply of nutriment, its digestive organs will attain a greater capacity than if it has been kept on more concentrated food. I also think that when an animal so fed is put on abundant summer food it will eat more—to fill the enlarged stomach—and will therefore produce more milk. The objection that has been raised to this theory is, that the stomach which has been accustomed to extract its nutriment from coarse food, will only get the same amount from that which is richer, and will eat no more of the richer food than is necessary to secure this amount. This I disbelieve, and I think it a fair field for experiment. The result of the trial will be valuable to all breeders. My stalls are ranged on both sides of a central feeding-passage. On one side I shall place all of the older cows, and shall feed them on cooked food, with an extra allowance of bran and ground oats. On the other will go the heifer calves and yearlings, and they will get only the cooked mixture of hay, straw, and corn-fodder, to which only enough bran has been added before cooking, to make it palatable.

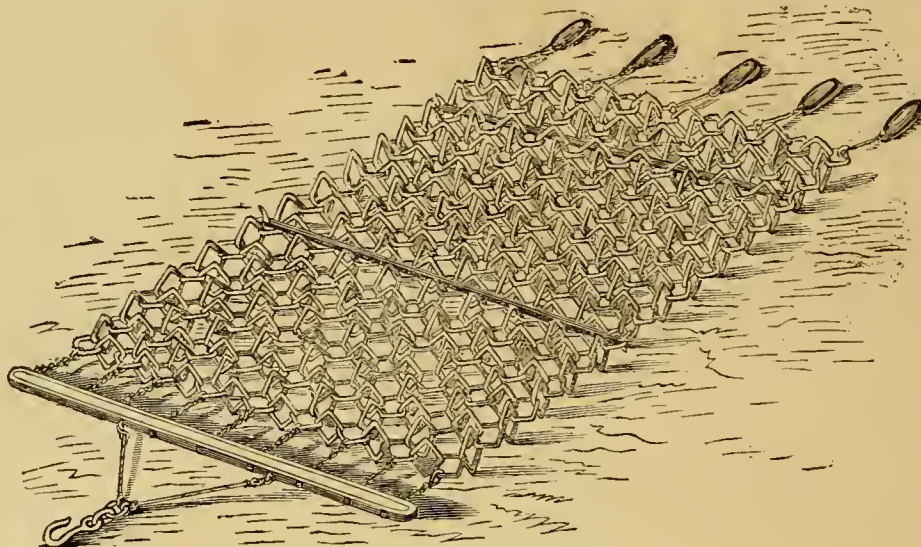
On another point concerning the treatment of young stock I find my opinion to be at variance with that generally received. It is the almost universal custom to turn calves into a paddock or pasture, when two months old or so, and to bring them up in this more "natural" way. I have always followed this custom with a part of my calves, and have kept the others during the first four or five months—usually during the whole first season—in the stable, feeding them on green fodder, oats, and skimmed milk. In very rare cases the calves turned out



to grass have done as well as could be desired; but in fully nine cases out of ten those which have been kept up have done vastly better, and I am now convinced that my best interest will be served by keeping all calves in the stable until they are at least five months old. With most of them this will carry us so far into the autumn, that the weather will prevent their being turned out at all. If it is objected that this is not the natural way to bring up calves, my answer is that we do not want natural but highly

artificial animals for the artificial duty of producing inordinate quantities of milk and butter.

I have this year given a trial to Lane's Sugar Beet, which I should not report had I not promised in a former communication that I would do so, because I have nothing favorable to say of it. The beets have not grown well, nor, if I am to judge only from this experiment, should I consider them worthy of another trial. I am, however, quite certain that the cause of the



A CHAIN-HARROW.

failure of my crop lies entirely with the season (for such a heavy soil as mine), and not at all with the variety. In the first place, no beets of any kind have done well with us this year; and in the next, I have seen previously such superb crops of Lane's root on other farms, that I consider it beyond all comparison a better variety than any other with which I am acquainted. The only result of my experiment, therefore, is that I am bound to try them again next year.

Of one thing this season has fully convinced me. That is, that on heavy soil it is useless to try to grow roots by flat cultivation, if the season turns out to be wet. I shall hereafter plant mine on the tops of ridges, after the plan almost universally adopted in England, where roots are grown by the hundred acres in a body. Had I ridged my Lane's beets this year, I have no doubt I should have had at least a fair crop.

Mr. George Geddes, in an article written for the Tribune, refers to my remarks in the September number of these papers, on the effect of fallowing, and he brings to the support of the suggestion there advanced items of his own experience and observation, leading in the same direction. His idea is that the true use of fallowing is to pulverize native soils which have never yet been sufficiently reduced—and that in such cases the practice is most judicious. On the other hand, he thinks that after the soil has been fairly subdued and brought to a pulverulent condition, once plowing is enough, and that too frequent plowing will induce exhaustion. On these points his arguments are quite clear. He does not go the full length of my suggestion, nor, perhaps, ought he to do so, for it is, after all, only a suggestion, thrown out to lead to a fair investigation. I am myself very far from accepting it as entirely true; but I do think that Dr. Voelcker's examination of earth-closet manure indicates a very probable source of injury from the over-cultivation of the soil, especially when it is not occupied by a crop.

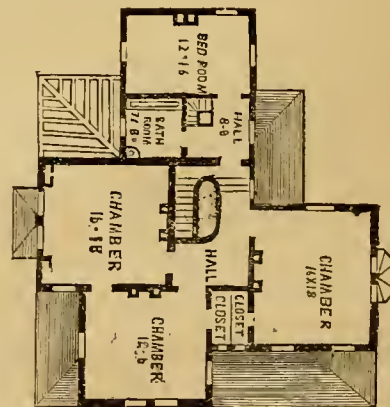
A Chain-Harrow.

The harrowing of wheat in the spring, the spreading of manure, the harrowing in of grass seed, and the handsome finishing to the surface of sowed ground, and equally the harrowing of young corn and potatoes, need a peculiar form of harrow. The Thomas Harrow for all these purposes on some soils is excellent; for some of them, on other soils, it has failed. On a late visit to the farm of Mr. William Crozier, near

Northport, L. I., we saw and tested a harrow of peculiar shape, which for many reasons we prefer to any toothed harrow whatever. One great advantage it possesses is that it has no teeth; repairing and replacing teeth, then, is saved in using this harrow, and it will last a lifetime without perceptible wear. It also has the advantage of conforming itself to every sort of surface, and of harrowing equally hollows and hills. It is also very light, and one horse can draw it. The surface is left in a perfectly handsome condition, and no lumps or stones are

torn up or sods left on the surface. It can not possibly clog either with weeds, rubbish, or manure, but passes over them and leaves them spread evenly upon the surface.

Finally, it is cheap, and can be made by any blacksmith, without any claim for royalty by a patentee or the permission of any other man. It consists of square links of half-inch square iron rod about four inches in diameter, connected in the manner shown in the engraving. Short chains connect it with a draw-bar to which the clevis of the whiffle-tree is attached. Two iron rods with a forked claw at each end are used to keep the links spread in width, and



PLAN OF SECOND FLOOR.—(See next page.)

bobs of cast-iron or any other similar weights or drags are attached to the rear by short chains to keep it spread in length when in use. In the harrow we tested, the links were welded, but we do not think this to be necessary. The harrow would be much cheaper and equally effective if the links were simply bent into shape and the ends drawn together after being linked. But the joints in the links should not be at any of the angles, but on one of the sides, half-way between two of the angles.

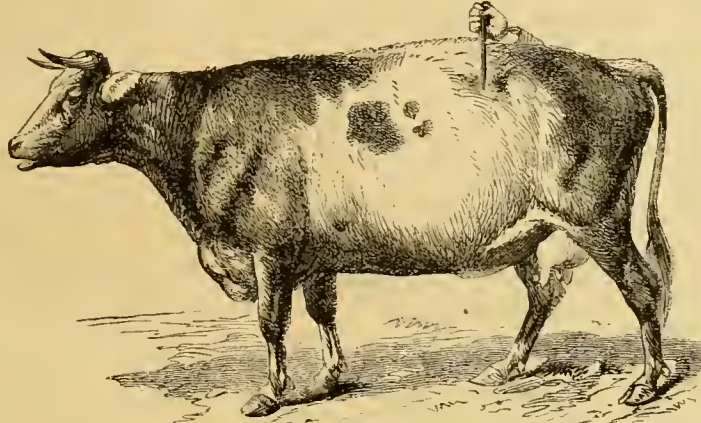
Remedy for Hoven.

In the *American Agriculturist* for June, 1872, page 218, we gave an engraving of a *trochar and cannula*. The trochar is a sharp-pointed instrument furnished with a handle, the cannula is a tube which fits over the trochar. One of the uses of this combined instrument is to relieve cattle suffering from hoven, or stomach dangerously swollen or distended with gas. In careless or inexperienced hands there is danger of penetrating vital parts of the animal when the trochar is plunged into its side. We give an engraving in which a safe method of using the instrument is illustrated. The distension of the stomach appears mostly on the right side of the animal. If the operator using the trochar stands on this side, there is great danger of piercing the kidney. If he stands on the left side of the animal and reaches over and holds the trochar in the same position as if he were making a blow with a dagger, or places his thumb on the top of the handle, as shown in the engraving, and then thrusts the trochar into the place, as shown, it is impossible that it can penetrate elsewhere than into the paunch or rumen. In drawing out the trochar the tube or cannula is left in the wound and the gas escapes through it. It should remain there until gas is no longer evolved by the fermenting mass of food, and when this occurs the cannula may be withdrawn and the small opening will close of itself and rapidly heal without any interference.

A Design for a Gothic Cottage.

In order to meet the wants of our readers, we from time to time give designs for dwellings. Indeed, a few years ago, Mr. Judd, the senior publisher, built several houses mainly for the purpose of showing how many conveniences could be introduced into a house for a moderate sum. The plans of these houses were published in the *Agriculturist* for 1870, in the numbers from April to August exclusive, and may be profitably consulted by any one about to build, whether they adopt either of his plans or not. So many of what are called "modern improvements," that are rarely seen save in the houses of the wealthy, are introduced into these plans, that one can hardly fail to get useful suggestions from them. Indeed, all labor-saving and step-saving conveniences are of even more importance to those in moderate circumstances than to the wealthy who can afford extra servants. We have had the promise from some of our subscribers of plans of the houses in which they live. We here give a perspective view and plans of a Gothic cottage, designed by Brown & Grable, architects, St. Louis, Mo. We are indebted for these to Messrs. A. J. Bicknell

& Co., publishers of "Bicknell's Village Builder," a work that is particularly valuable for the fullness of its details, both in drawings and specifications. The design is suitable for a village or suburban residence, or for the house of a well-to-do farmer, and it may be executed in wood, brick, or stone, or even in concrete. The exterior, as shown in the perspective view, is ornamental, yet the ornamentation is dignified



USE OF THE TROCHAR IN HOVEN.

and exceedingly simple in its details. It has what every country house can have at a small additional expense—a conservatory. Probably there is no way in which so much enjoyment can be had for the same amount of money as in adding a room for house plants. This, however, can if desired be omitted from the present plan without detriment to the appearance of the building. The plans of the first and second floors, which for convenience are placed upon the opposite page, will explain the arrangement adopted for the interior. For the front and side elevations, as well as the specifications giving minute descriptions of the different portions, we must refer to the work above named, as they

Facts in Turkey-Breeding.

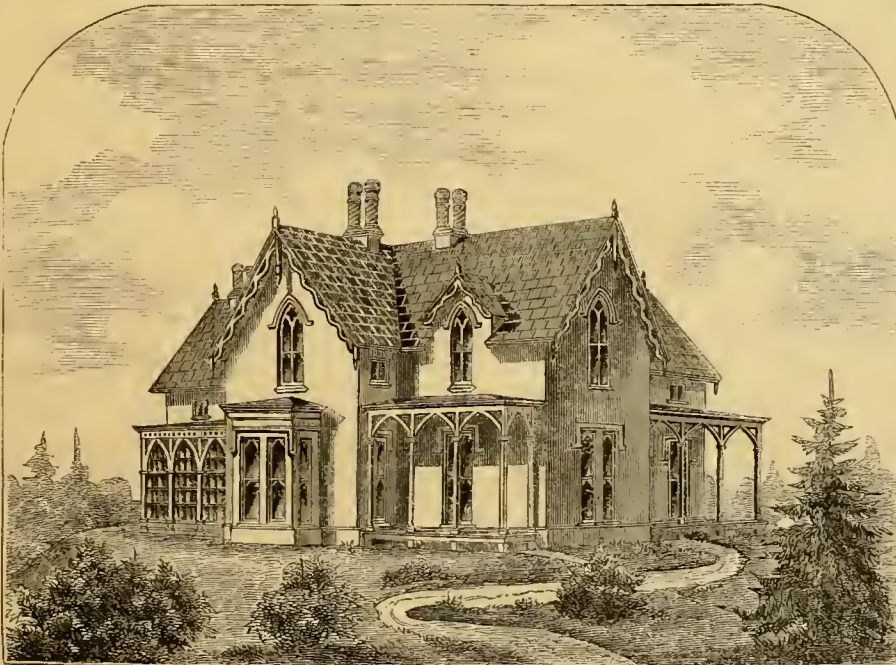
There is nothing like facts to confirm a theory. If it were really believed that good selection and good feed would increase the average size of turkeys a third, it would not be difficult to get intelligent farmers to pay attention to these points. We find a very important item in a local journal from North Stonington, Ct., which confirms this view. This town is on the borders of Rhode Island, and represents the district where the Narragansett turkeys principally are raised, known in the market as Rhode Island turkeys. The writer says: "Probably more than fifty thousand pounds of poultry have been sent from this vicinity this week for the Thanksgiving market in Boston at 23 cents a pound. The quality sent this year is better than that of last year, some lots of turkeys averaging nearly twelve pounds, and one monstrous old fellow bore down thirty-six and a quarter. The size of turkeys raised hereabouts has increased steadily for twenty-five

or thirty years, owing to attention to propagation. The time was when the average at Thanksgiving did not exceed eight pounds, and brought only as many cents a pound; whereas the weight has been increased fifty per cent, and the price two hundred per cent." From Stonington, the town immediately south, a still larger quantity was sent, and the quality was a grade heavier. Said an old farmer who bought a large Bronze gobbler of premium stock last season, "I must have some more of that stock, for I have the heaviest turkeys in the neighborhood." Good feed, especially during the first fall and winter, is almost as important as good stock. A farmer feeds a bushel of corn to a

hundred turkeys in November in a day, at the cost of a dollar, and it looks a little extravagant. But it is less than the third of a quart, and the cost of a cent a day for each bird. We once tried the experiment of feeding some second-litter turkeys through the winter, and found the hens gained about two pounds a month and the gobblers three. The feed was principally boiled potatoes, and meal and corn. At this rate, the gain in flesh, at twenty-five cents a pound, would be worth about seventy-five cents a month for each gobbler, and fifty cents for each hen. If thirty cents' worth of feed will make this gain, it can not be very bad business to feed turkeys liberally through the winter. By all means

have large, well-fed stock to breed from in the spring, and the time to make them is now.

VALUE OF CHAFF.—Chaff is worth for feed twice as much as straw. Oat-chaff stands first, wheat next, and cows will very readily eat and thrive on it when wetted and sprinkled with meal. The chaff should be husbanded with care,



PERSPECTIVE VIEW OF A GOTHIC COTTAGE.

are altogether too voluminous to introduce here. The front of the house is 43 feet, and the depth 50 feet. The estimated cost is \$3,500 to \$5,500, according to locality and style of finish. Of course the expense can be greatly increased by the addition of what builders call "extras." And care should be taken that everything likely to be needed be included in the contract.

Walks and Talks on the Farm.—No. 109.

During the year I have complained more than once of "hard times for farmers." I do not like to grumble. It is far more pleasant to look at the bright side. It is also more profitable. What a farmer needs is "pluck." There is much to discourage, even at the best, but in times like these it is specially necessary to guard against despondency. If a farmer has good health, if he has a good appetite and good digestion, and can sleep well, he is not much of a man if he can not keep up his spirits and go to work. There is one feature of the present depression that should not be overlooked. Labor never was in greater demand or commanded better pay. It would seem that if a man can work he can certainly make a living. It is only the men who hire labor or who work for themselves that have any reason to complain. Those who work for others can not complain of hard times. Taking this view of the subject, it can not be doubted that the country, as a whole, is in a prosperous condition.

There are thousands of farm laborers who have saved money enough to buy farms for themselves at the West or to rent farms on shares. As long as land is so abundant and cheap we can not expect to get good farm laborers at low wages. They prefer to farm their own land, even if they do not make half as much money as they would if they worked for others. This is one reason why farm produce sells for less in many cases at the present time than it costs to produce it. As the Deacon says, "farmers have been working very cheap." We have been working for the railroad and elevator men, and wherever they have had a chance they have shown us no mercy. I never talk politics, but I think the time is come for farmers to look after their own interests a little, and see if something can not be done to prevent railroads from charging us more for carrying our products 50 miles than they charge, where there is competition, for carrying them 500 miles.

It is well to talk over the operations and results of the past year, and lay plans for the future. Every year ought to teach us something. It has taught me, what I knew before, that after a farmer has done everything that is necessary to secure a good crop he may reap only a poor one. The "scientists" may laugh at our simple trust in Providence, and talk about inexorable "law," but a farmer of any experience knows and feels that his crops are affected by rain and drouth, by frost and heat, by insects and mildew, by storms of wind and storms of hail, and by many other things over which he has no control.

When I sowed my wheat in the fall of 1871, I thought I had made my wheat-field rich enough, and clean enough, and mellow enough, and dry enough to produce 40 bushels per acre. But I got only 23 bushels per acre, and some of that was of very inferior quality. This result was due to dry weather in the fall, severe frost and no snow in the winter, and cold winds and no rain in April and May. The wheat plants were not "winter-killed," but many of them were so parched and chilled that they had not vitality enough to mature their seed.

I had three or four acres of new "beech and maple land" that was sown to wheat for the first time since it was cleared, and on this new land the crop was even worse than on my old land that has been cropped for forty years or more. And this land was certainly as well

prepared as it was in the good old times when the country was new, and when the big crops were raised that we read about. I have an idea that the poor crops were not reported. It is certain that this land had not been "exhausted." It was just as rich, just as well drained, and quite as well put in as it would have been if last year had been 1823 instead of 1872. And I do not believe the "seasons" have changed. There were good and bad seasons then, and there are good and bad seasons now. Last season happened to be a bad one. Let us hope that the next will be better.

There is nothing in all this to discourage us. It is the normal condition of agriculture. I would like to have had 40 bushels of wheat per acre instead of 23 bushels. But I have just as much faith in good farming as I ever had. My crop was more than double what the Deacon got on adjoining land, and of far better quality. The straw was also better, and the land is far cleaner, and the clover promises to be all that one could desire. It is so good, that the Deacon has made up his mind, he says, to do as I did last spring, and give his wheat a good harrowing before sowing the clover seed.

I do not recollect whether I have or have not mentioned the fact that the clover and timothy seed that we sowed with the mustard and rape was a failure. Such was at any rate the case, and we plowed up the land last spring, and sowed it to oats, and seeded it down with timothy and clover. There was a capital crop of oats, but at the time of harvest there was very little clover and timothy to be seen. But after the fall rains, the clover, and especially the timothy, put in an appearance, and when winter set in there was a fair prospect for a crop of grass next season.

The oats where we had mangel-wurzel turned out grandly. If it had been a wet season they would have lodged, and been worthless. So, if I had got my 40 bushels of wheat per acre, I should probably have had a crop of oats not worth the labor of harvesting. As it was, there was not a tenth of an acre in the field that could not be cut with a Johnston Reaper, and we have a stock of oat-straw, of good quality, that will greatly lessen the expense of wintering my sheep and horses. And there is a good catch of clover and timothy.

This year (1872) my mangel-wurzel were an evener and on the whole a heavier crop than last year, although the season was so dry that they apparently got very little benefit from the manure put in the ridges. I say apparently, because the manure seemed this fall to have lain at the bottom of the ridges undecomposed and unappropriated; but, in point of fact, I have no doubt that the mangels would not have been half as good if the land had not been manured. I think there was over 1,000 bushels of mangels per acre. On part of the land we put no manure in the ridges, but sowed 300 lbs. per acre of the Manhattan Fertilizer Co.'s superphosphate broadcast, and ridged it in. I think the mangels were nearly if not quite as good as where manure was used. I ought to say, however, that all the land had been top-dressed with manure a year or two previous.

I also sowed Swede turnips or ruta-bagas on ridges, some with manure and some with superphosphate, and could see very little difference. The land is near the barn-yard, and is in high condition. We had a tremendous growth of tops, and perhaps ten per cent of large, hand-

some bulbs; but, owing I think to bad seed, nearly half the crop had large thick necks, and some of them as long as a cabbage-stalk! The crop, too, was injured more or less by plant-lice, that in many cases covered the leaves.

In our dry climate, so far as my experience goes, mangels are the best root for us to raise for late winter or spring feeding. They will stand the drouth better than the Swede turnips, are seldom if ever affected by insects or mildew, produce more per acre, are more nutritious, can be kept longer, and do not impart any unpleasant flavor to milk or butter. Pigs, too, are remarkably fond of them. Cooked with corn-meal, they will fatten pigs rapidly. But this is not what I specially prize them for. I feed more or less of them to my breeding sows through the winter and spring, or until they are turned out to clover.

I raised about three acres of Strap-leaved turnips. They were a great crop. The land had been pastured for four years. Two years ago I top-dressed it very heavily in the winter with manure—so heavily that the Deacon said I had killed the grass. But, so far from that being the case, I have rarely, if ever, seen a pasture that carried so much stock. The soil is somewhat sandy, and not at all naturally good pasture land. It lies high and dry, and yet after it was top-dressed the grass kept green during the severest drouth almost ever known in this section. I think one acre of it supported as many sheep as any other three acres on the farm not similarly treated. But the sandy knolls were so full of stones that they could not be properly plowed and worked, and they got full of thistles, and these spread so rapidly that I determined to break up the piece, get out the stones, and kill the thistles. So, late in the fall of 1871, we plowed the land, getting out such stones as did not require too much labor. In the spring, the thistles came up by the thousand, and we plowed the land again, although the sod, owing to the dry weather, was scarcely rotted at all. We harrowed it, and as soon as we were through the spring work, plowed it again, and got out a great quantity of stones. We could then use the cultivator to advantage, and this, with the harrows, reduced the soil to a tolerably fine tilth. About the last of July or first of August we plowed it again, and then sowed 200 lbs. of superphosphate per acre broadcast, and drilled in on the flat three pounds of Strap-leaved turnip seed per acre. I raise my own seed, and so can afford to seed liberally! The drills were two feet apart, and we thinned the plants out in the rows to ten inches apart. They were hoed twice, and cultivated three or four times. I think I never saw a handsomer or cleaner field of turnips. I think there was at least 700 bushels per acre—and this is certainly a good crop for such late sowing.

"But will it pay to bestow so much labor?" This is an ugly question! There are not many crops that afford very exorbitant profits at the present rate of wages. But in this case I think I can safely say that *if I had sold the turnips* they would have paid far better than any other crop raised on the farm. Whenever I had a load to bring home from the city, I sent down 35 or 40 bushels of turnips, and they sold readily at 30c. to 35c. a bushel. As a crop to feed out on the farm, I am not sure that a good crop of corn would not pay better. It depends on the stock we keep, and the conveniences we have for storing and feeding out. I have never been an enthusiastic advocate of root crops in the present condition of our agriculture; but it seems evident that with the introduction of bet-

ter breeds of animals we shall grow more and more succulent food for winter feeding.

My potatoes were a poor crop. The Early Rose were better than the Peachblows, planted side by side. This I attributed to the long-continued drouth. The Rose was ripe just at the time that the Peachblow would have made the greatest growth in a favorable season. Mr. Edward L. Coy sent me a peck of "Thorburn's Late Rose Potatoes," which it was said "would yield two or three times as much as Early Rose, planted in the field with ordinary culture." I was through planting when they came, and had just commenced ridging for mangels, and had got manure spread in the ridge. I planted the potatoes on top of the manure, and then covered them with the plow. The Late Rose only planted part of the row, and we finished the row with Early Rose. I did not measure, but should judge that the Late Rose yielded one quarter to one third more than the Early Rose; but both of them yielded more than double the crop of either the Early Rose or Peachblows planted in the same field without manure. In fact, the men in digging said this one manured row yielded as much as three of the unmanured rows. The potatoes, too, grown on the manure were just as sound and healthy as those unmanured. Some of the Late Rose potatoes were nearly as large as the big, coarse California potatoes which we used to grow ten years ago for stock. But we baked a few of these large Late Rose, and found them of excellent quality. What we want is to pay not less attention to new varieties, but more attention to enriching the land.

My corn crop was the best I have had for many years, and yet it was in the same field and on the same kind of soil as the potatoes which turned out so poorly. Corn will stand drouth better than potatoes. The good yield of potatoes on the one manured row proves that manure is to some extent a substitute for rain.

I must be allowed to congratulate myself on one point. The mangels, corn, and potatoes were all in one field, and, with the exception of a patch of thistles adjoining an old fence and stone-heap, there was not at harvest a bushel of weeds in the whole field of twenty-two acres. And yet I never spent so little labor in hoeing. It is due in a good degree to the thorough cultivation bestowed on the land while in corn five years ago. I would like to give a history of this field before and since it came into my possession, but must defer it for the present. I ought to state, however, that I used Thomas's harrow freely, both on the corn and potatoes after they were planted, and then kept the cultivator going frequently between the rows. I ran the cultivator through the corn as late as the last of July or first of August.

The other labors of the year consisted in deepening and tiling the big ditch I have so often spoken of. We also summer-fallowed 20 acres for wheat, plowing it three times, and getting out great quantities of stones, and making it so smooth that a boy can drive a mowing-machine all over it. I am tired of having to "stake" my clover meadows every year, and then setting a man to mow round the stones after the machine. I use two mowers, and want the boys to run them. I believe in the boys. They are less prejudiced, and not so easily discouraged as their slow-going daddies. But I do not want a boy on a machine where

there are stones. It is too dangerous a place. I was myself once pitched clean off a reaper by running against a fixed stone.

We fall-plowed fourteen acres of clover sod for barley, and I hoped to have plowed, or at any rate to have cultivated, with a big four-horse cultivator, my corn-stubble and potato ground, where we intend to sow barley in the spring. But the horse-disease rendered it impossible. Every horse I had was attacked, but not very severely.

In fact, I think this epidemic was a great benefit to my horses. They got a week's absolute rest, all the bran-mashes they would eat, and the best of care and grooming. I have always wanted this done, but have found it almost impossible to get it faithfully performed. But as soon as the epidemic broke out in the city, and two or three of my horses showed symptoms of the disease, all my men seemed anxious to "do something," and I set them to work. The stable was swept in every nook and corner, cobwebs brushed down, mangers and racks cleaned out, and every particle of food removed the moment the horses were through eating. Bran-mashes were freely given, and as medicine of some kind had to be given, we put a little pulverized saltpeter and sulphur in the cut-feed. We then got a pail of warm soft water, and put three or four table-spoonfuls of liquid ammonia into it. With this, and plenty of soft-soap and a little carbolic soap, we washed the horses all over, setting two men to each horse, and as soon as he was washed and partly dried by rubbing, we threw a blanket over him, and then rubbed his legs, belly, head, ears, neck, etc., with wisps of dry straw. The next morning the horses were treated to such a lively brushing, one man on each side, as they have never before had since they have been on this farm. It would be a lucky thing for my horses if they were threatened with this disease about once a month.

This *resumé* of the labors of the year is very incomplete. A farmer's life is anything but a monotonous one. His labors vary day by day and season after season. He has more things to attend to than most city men. As one of the old Roman writers said, "a farmer should be a seller rather than a buyer." He raises a good share of everything that he needs, and it will make a great difference in his expenses and in the comfort of his family whether he is or is not "a good provider."

There are two old farmers in this neighborhood who are noted for having good gardens—noted, in fact, for having everything that makes home comfortable. I do not know that they are aware of the fact, but it is nevertheless true, that I try to have as good a garden and orchard as they have. A little friendly rivalry is a good thing. I am trying hard to beat them in raising Northern Spy apples. I have an orchard of over 200 Northern Spy apple-trees, set out, I believe, 14 years ago. This variety, as J. J. Thomas once remarked, "is a long time coming into bearing, but worth waiting for." The trees have made a great growth, and I am trying to keep them healthy, and induce them to bear moderately every year. This past season was not the "bearing year," and yet I had nearly as much fruit as the year before, and of excellent quality. My plan is to thin out the fruit when there is more than the tree can mature perfectly. I keep the land in grass, and have top-dressed

it liberally for three or four years past. And the grass is kept closely depastured by sheep. Their droppings return to the land *more* than the grass removes, owing to the fact that the sheep spring and fall get extra food in the shape of hay, bran, roots, and sometimes a little grain. The growth of the trees and the dark foliage show that they are not suffering for plant-food or moisture. The sheep pick up all the stung apples that fall, and in this way I am in hopes of checking the spread of the codling-moth. The fruit is quite liable to be spotted with fungus, but I trust that by continuing to wash the trunks and large limbs with lye and carbolic soap we shall be able to avoid this trouble. The indications are quite encouraging. The bark, wherever the lye and carbolic soap touch it, is entirely free from moss, and looks bright and healthy. Mr. Hooker says ordinary soft-soap would have the same effect. I presume it would if used freely and frequently, but the lye and carbolic soap are much more powerful, and are not expensive. This winter I mean to go over every tree again, and apply the lye up higher along the branches. It is not as much work as might be supposed. It requires a little energy to commence—that is all.

The Use of Windmills.

A "Subscriber" writes from Illinois that he is in trouble, and his trouble has become chronic. For some years past, during a considerable portion of the year he has had no water in his well. His neighbors' wells have also failed, so that water has become a scarce article. He owns a grist-mill which is run by steam, at least is when water can be procured. But now and for some time back, and for several seasons at this period, his mill has been idle and his business suspended. He asks, "Is there no way of using the winds which are always sweeping over these prairies?" For the relief of our "Subscriber" and many others, we reply, there is a way out of this difficulty which it is most strange has not been widely adopted in the Western States. Windmills—not the sham, gingerbread, toy things commonly exhibited at agricultural fairs, which are fit only to pump water for a cistern, but solid, substantial structures, which will turn two pair of stones, with all the elevators and bolts of a country grist-mill. We append to this article an engraving of a windmill such as has been in existence on Long Island and Rhode Island for centuries, and which is a common feature in the landscape in Europe and throughout England. We judge that one half of the mills in those countries are run by the wind, and there are just such mills as the one pictured on next page, which are two or more centuries old, and one we have visited claims to have withstood the breezes of five hundred years, and to have during that long period ground the meal for more than a dozen generations. Now, why such mills could not be built and run in the West we fail to perceive. They are of the simplest character, of the most substantial structure, and the power is the very cheapest that could be procured. Its only weak point is that it can not run on some few occasions. But on the other hand, the case of our "Subscriber" shows that the generally infallible steam-engine sometimes stops. There are seasons of low water and freshets when water-wheels are useless. But very seldom is there a total absence of wind for twenty-four hours at a time. Taking all these considerations into view, it is quite certain that the old-

fashioned windmill is to have its day prolonged, and especially in the West, to become a useful means of economizing the vast power created by the currents of the atmosphere.

The building is of a conical shape, tall and narrow; tall, that it may better catch the breezes; and round, that the cap may be made to rotate and carry with it the arms, which may thus be adjusted to face the wind at all times.

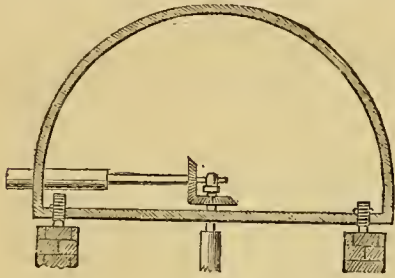


Fig. 1.—GEARING OF WINDMILL.

The power is gained by the spread of sail on the arms, and they should be 24 feet long, and carry a sail 16 or 18 feet long, by 6 feet wide at the end, gradually tapering to 3 feet at the other extremity. The building may be of stone, brick, or timber. Internally it is fitted up as any other grist-mill. The cap (of timber) rotates on wheels or rollers, and is turned so that the sails may face the wind as it may change, by a toothed wheel working in a toothed rack, similar to that by which the feed of a sawmill carriage is worked. The shaft which carries the four arms passes through the cap and forms the radius of a circle which has its center on the upright shaft passing downward to work the machinery below. A bevel wheel on the arm shaft communicates the motion to another bevel wheel on the upright shaft, and a gudgeon on the end of the arm shaft is clasped by a rotating box, on the end of the upright shaft. A platform ought to run around the top of the building on the outside just beneath the cap, by which access is gained to the sails when it is



Fig. 2.—OLD-STYLE WINDMILL.

desired to furl or spread them. The sails are spread by means of ropes and pulleys in the simplest manner, and are furled in a moment when needed. They should be made of light duck or common sail-cloth. If our subscriber desires more information, we will be happy to furnish it by letter on application.

Cooking Food for Stock.

Farmers on high-priced lands need to make the most of their produce. Labor is higher year by year, and to meet all the increasing burdens which fall upon him the farmer is forced to practice greater economy. If there is a way to make a ton of hay, or straw, or corn fodder feed two head of stock in place of one, he must know of it, that he may adopt it as soon as may be. If corn is ten cents a bushel, and by any process he can so use it that one bushel is made of as great value as two, its price becomes twenty cents by so using it. It is quite safe to say that by shelling and cooking corn for hogs it often becomes nearly double the value, in making pork, of corn fed on the cob direct from the crib. A greater saving still is made by grinding the corn whenever it is practicable. The greatest saving, however, is undoubtedly made by the cooking, and this is almost always practicable. Again, in feeding potatoes, there is a large saving made by cooking them, not only by means of the more digestible condition of the cooked food, but by getting rid of the large percentage of cold water contained in them, which when they are fed in

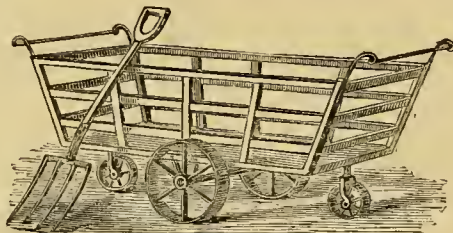


Fig. 3.—WAGON FOR FEED.

winter abstracts much heat from the animals, which must be restored again by increased consumption of food. It is not the amount of food we give to an animal which produces growth, but the amount which is digested and turned into flesh and fat; and by cooking grain and fodder we find they are rendered more digestible than when fed raw. The starch contained in grains is rendered more soluble in the stomach, and the cellulose of hay, corn-stalks, or straw undergoes a chemical change which renders it more convertible into nutriment. This matter has been so often discussed and favorably considered in the *American Agriculturist*, that it is our intention just now to speak of the methods of cooking feed, rather than of the utility of doing it. We take that as confessed, and in reply to many inquiries "how to do it," give the following directions: The first need is a steamer or boiler. For general purposes, and where the stock to be fed do not number over 50 head, the Prindle steamer is the best appliance we know of. The writer has used one of them in cooking feed for 24 head, and found that it was not used to half its capacity. It has the additional merits of being useful as a simple caldron or boiler for other purposes, and of being cheap. Other steamers are made by Western manufacturers which seem to do the work required of them in a satisfactory manner. The main thing is

safety; that the steamer should be capable of sustaining the requisite pressure, and should be economical in use. If these points are secured, it is immaterial what particular steamer is made use of. The steamer should, for safety, be kept in a building separate from the barn, and, if possible, built of such materials that it would

not take fire, or at least, if it should do so, that it would not endanger the barn or other buildings. An open shed that could be thrown down readily is preferable to a wooden closed build-

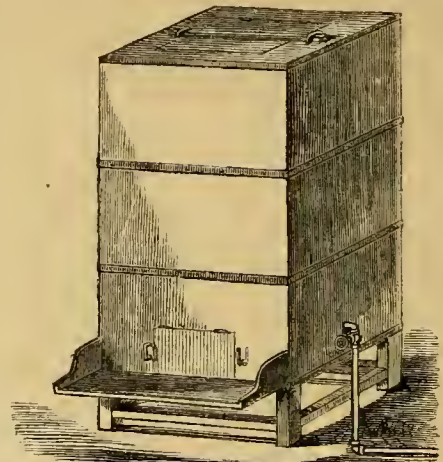


Fig. 1.—CHEST FOR STEAMING FEED.

ing; a brick building with slate roof is preferable to any other, and a spark-arrester or wire-gauze cap should always be placed over the furnace-pipe. From the steamer an iron pipe conveys the steam to the feed-room in the barn. This pipe, if it is carried more than 100 feet, should be buried a few inches beneath the ground in a wooden trough, and packed around with dry ashes, or wrapped in old woolen rags, or some non-conducting material which will prevent loss of heat. The pipe enters the steam-chest, shown at fig. 1, and passes once around it, on the inside, at about a foot from the bottom. The pipe inside of the chest is pierced with numerous small holes for the escape of the steam, and by this means it is completely diffused throughout the mass of feed in the chest. A valve in the pipe just outside of the chest shuts off the steam or lets it on when required. The steam-chest is made of plank, joined by tongue-and-groove joints as closely as possible, and is strengthened by bands of hoop-iron passed around it. It is elevated about a foot from the floor for convenience, and is provided

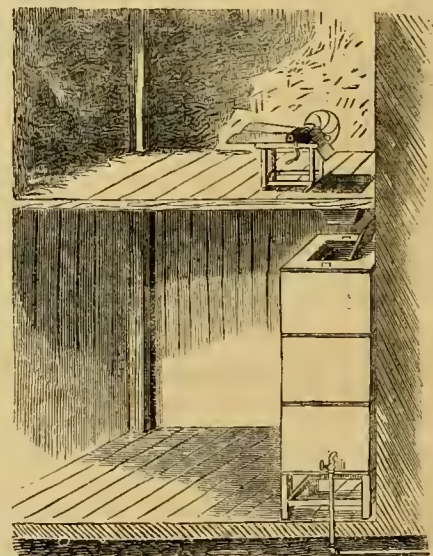


Fig. 2.—POSITION OF CUTTER AND STEAM-CHEST.

with a bench in front from which the feed is removed. It has a door at the bottom for the removal of the prepared feed, and one at the top whereby the cut fodder is introduced. These doors are fitted closely, and are kept in place when closed by a wooden bar fitting in staples, as shown in the figure. The cutting-

box should be kept in an apartment of the barn immediately over the steam-chest, which arrangement materially lessens the labor connected with cutting the feed and filling the box. Fig. 2 shows the proper relative situation of feed-cutter and steam-chest. A very convenient wagon is shown in fig. 3 for conveying feed to the stock, and when filled is run along the

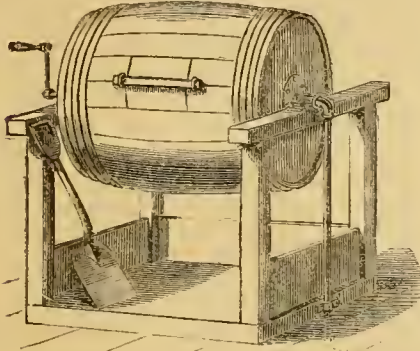


Fig. 4.—STEAMER FOR HOG-FEED.

feeding-alley, and the feed passed into the troughs with the four-pronged fork also shown in the figure. The capacity of the steam-chest will depend on the number of stock to be fed. About three bushels per head per day will be required; but it is best to have the chest larger than needed at first, for the reason that stock is always increasing, more especially when this system of feeding is resorted to. The chest should hold enough for two days' consumption; then, for 20 head, a box to hold 120 bushels will be needed. A bushel is equal to one and a quarter cubic feet; therefore, a chest 3 feet by 4, and 8 feet high, will be ample for 20 head of stock. It has been found to pay very well to cook feed for 10 head, but not for less than that. The fodder when cut should be mixed evenly with the meal or bran to be fed with it, and thoroughly dampened before the steam is turned on. Unless it is dampened it will not cook readily by steam. If roots are used, they should be pulped and mixed with the cut fodder. For steaming meal, grain, or roots for hogs, a barrel mounted on trunnions, one of which is hollow, is the best arrangement. Such a one is shown in fig. 4. The barrel is hung in a frame built over a table, the steam-pipe is passed through the hollow trunnion, and packed with india-rubber packing. A square opening is cut in the barrel to put in and take out the feed, which if it be meal or grain is always to be mixed with water when it is put in. During the cooking, it absorbs a great deal more moisture than can be supplied by the steam, and this must be provided for. A solid body of moist meal or grain will not cook thoroughly without being stirred up, and this process is accomplished by revolving the barrel occasionally during the steaming. Experience comes rapidly with practice, and it is surprising how soon the dullest laborer learns to understand everything that is requisite, and even to make improvements.

It is necessary to avoid giving the feed to stock in too warm condition; a temperature of about 80 degrees should not be exceeded, and somewhat less would be preferable. We have not found it advisable to feed cooked feed to horses nor to sheep, although some successful feeders have done so, and approve of it. Our experience is that the practice is best adapted to the production of milk and flesh, but that animals from whom hard work is expected are rendered less able to perform it, and are sooner exhausted than when fed on dry feed. But we

have found that horses troubled with the heaves are much improved by cooked food, and in many cases entirely cured.

Combined Fire-Engine and Hose-Carriage.

The risk of fires in country towns and villages and amongst scattered farm buildings is vastly increased in winter time, and the destruction occasioned is also greater from the absence of effectual means of preventing their spread. It is very seldom that a fire in the country is extinguished until it burns out, for the reason that there is no cheap and handy fire-engine available. We give below an engraving of a combined fire-engine and hose-carriage, which in our view meets exactly the wants of country residents. In the country, a costly establishment is out of the question, and a light and portable engine which can be operated by a few men is what is needed. This is precisely what this engine claims to be, and what we are assured it is. With a weight only of 1,500 pounds, easily operated by 14 men, it does the same amount of work as 60 men with an ordinary second-class engine. Its cost is about two thirds of that of the latter engine. The American Submerged Pump, the basis of this engine, has saved during the past year \$200,000 worth of property that

wheel, if the fall is sufficient for an overshot wheel (or one which receives the water from above, as shown in fig. 1); if the fall is too low for such a wheel, and not over four to eight feet, a breast-wheel, or an undershot when the fall is still less, may be used. Such a wheel is shown in fig. 2.

Our present purpose is, in reply to requests

from several correspondents, to describe the construction of these wheels.

The one shown in fig. 1 is the overshot wheel, suitable for falls of eight feet and over. It is shown in section, that is, cut through on the inside. To construct it, it is necessary to take pine boards (any other will do, but white pine is lightest and best), cut into pieces which put together will make the rim of the wheel. The rim should be twelve to eighteen inches wide, and made of two or three

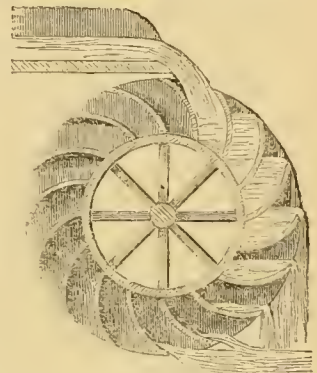
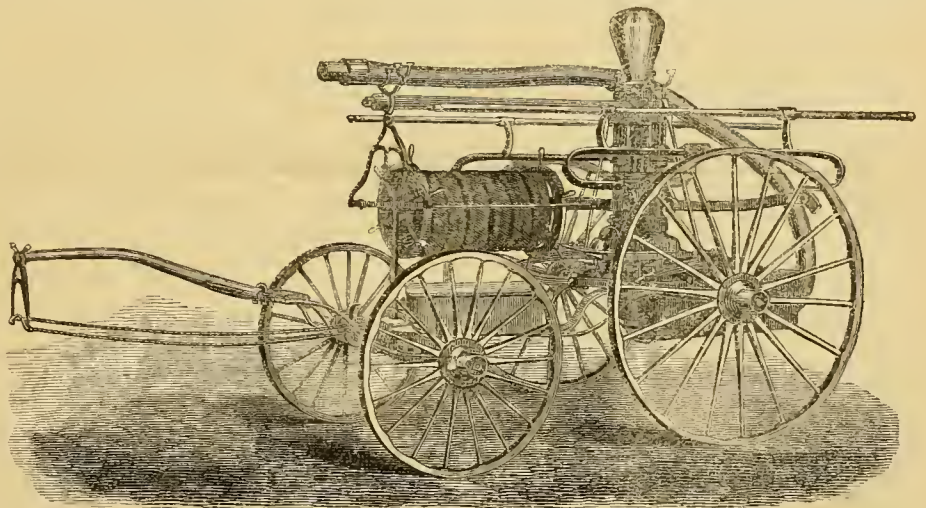


Fig. 1.—OVERSHOT WHEEL.



FIRE-ENGINE AND HOSE-CARRIAGE COMBINED.

would otherwise have been destroyed. We hear that it has recently taken the gold medal at the Moscow (Russia) exhibition over all other competitors. We believe it to be the cheapest and the best of its kind, and in view of its necessity under the circumstances we have mentioned, thus present it prominently to our readers.

Water-Wheels.

The power of falling water is under favorable circumstances the cheapest possible power. It is constant, regular, inexpensive, and needs no costly attention. It might be utilized on many farms for churning, thrashing, cutting feed, pumping water, sawing wood, or grinding. The means whereby the power is utilized are so simple that no skilled labor is necessary to provide them, unless great economy of power is desired. But generally the power is so ample for the needs that there is abundance to spare and the roughest kind of wheels and gearing alone will be sufficient. The first thing needed is a dam. The construction of dams was explained in the *Agriculturist* of October, 1872. The next thing is a spout to conduct the water on to the

thicknesses of inch boards, nailed together with wrought nails clinched. They should be put together so that all joints are broken. The arms are mortised into the shaft or axle of the wheel, and the rims are bolted on to them. The shaft should be longer or shorter, according to the

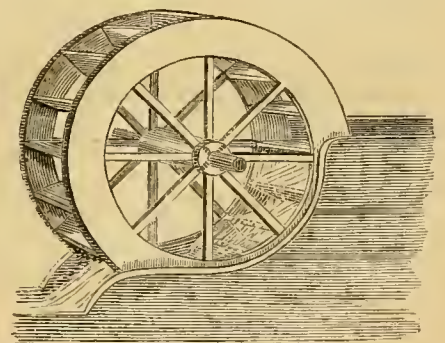


Fig. 2.—BREAST-WHEEL.

supply of water and the power of the wheel. On the inner sides of the rims there are slots or grooves to be cut or shaped as nearly like the curved lines shown in fig. 1 as possible. These are to hold the sides of the buckets. The buck-

ets are made of half-inch clear pine or spruce, and are cut exactly to fit into the grooves. When they are all put in their places, four (or more, if the wheel is large) rods of $\frac{1}{4}$ -inch round iron are passed through, and nuts with washers underneath them are screwed on, to draw the rims tightly together. Then a half-inch skin is nailed on the inside, which makes the soles of the buckets; wing-gudgeons are let into the ends of the shaft, iron rings are driven over the gudgeons to prevent the shaft from splitting, and the wheel is ready to set up. It must be raised free from contact with the tail-water, or much loss of power will be occasioned. If this wheel is neatly made, of light materials, the buckets made so as to discharge the water freely at the right moment, and no power is lost by improper management, it is one of the most economical wheels that can be used; utilizing 75 per cent or more of the actual weight of the water. Where water is more plentiful and the fall less, the undershot wheel shown in fig. 2 should be used. Its construction is so simple, and is shown so clearly in the engraving, that no further description is needed. The materials should be similar to those in the previously-described wheel. The gearing necessary for communicating power from these wheels may be of iron or wood. Teeth of second-growth hickory wood will answer for light work, as pumping or churn-

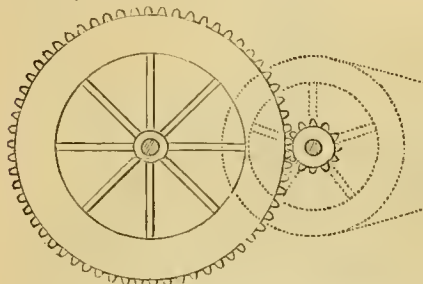


Fig. 3.—GEARING FOR WATER-WHEEL.

ing, but for heavier work iron gearing would be needed. The wooden teeth may be mortised into the rim, and work into a pinion fixed into a shaft on which a wooden pulley is built. A belt from this pulley will convey a greatly accelerated motion to any other machinery attached to it; or the crank of a pump or churn may be connected directly with the pinion, which would give sufficiently rapid motion for such work.

The power of a stream may be calculated as follows: Mark a spot on the bank of the stream; throw a straw on the water and measure the distance it is carried down in one minute. This may be 200 feet, or less or more. Measure the depth and width of the stream in feet. If it should be six feet wide and six inches deep, that will make three square feet. Multiply 200 by the 3 gives 600 cubic feet per minute; multiplied by 62 $\frac{1}{2}$, the weight of a cubic foot of water, makes 37,500; multiply this by the fall in feet, say 8, gives the foot-pounds of the fall, 300,000; which divided by 33,000 (the foot-pounds of one horse-power) gives about 9 horse-power. About three-fourths of this may be utilized by a good overshot wheel if it be properly arranged.

A Splice for Timber.

The engraving represents a splice that is very useful for many purposes. For timber of a heavy character, as sills, plates, or beams; for lighter stuff, as posts, studs, or rafters, or for wagon and sled tongues, it makes an excellent joint. Where the joint has to resist a drawing

strain or sustain a weight it is indispensable. In the center of the scarf a square notch is to be cut, which enables the beveled ends of the



SPlicing A TONGUE.

joined pieces to enter beneath the inward sloping cut made to receive them. The keys (shown separately) are then driven tightly into the notch from opposite sides, by which the joints are closed. In small work a joint of this kind glued will be as solid and strong as unbroken timber, and a wagon-tongue thus spliced, and wound with stout twine or wire, or with two carriage-bolts passed through the joint, will be as strong as ever again.

KEYS.

Earth-Closet Manure and the Potato Disease.

Col. Geo. E. Waring, Jr., now in England, sends us the following: England has been this year, as never before, cursed with a very general destruction of the potato crop. The cause of the disease is not known, nor does any one pretend to prescribe a remedy. The general and very natural assumption is, that the plant is weakened either by a deficiency of needed supplies in the soil, or by its inability to assimilate, under the atmospheric conditions of a season in which the blight is produced, the supplies existing in the soil in sufficient quantity, perhaps, but not in a condition to be taken up by a plant of diminished vigor.

The Rev. Henry Moule, the inventor of the earth-closet, who is always on the lookout for evidence of the value of earth manure, now points out the curious fact that in the garden of the Industrial Aid Society, in Hereford (in a district where the potato disease has been universal), the entire crop, manured with earth-closet manure, escaped entirely, to the surprise of all. Mr. Moule believes that by reason of their better nutrition, these potatoes were better able to withstand the influence of the blight.

Scales of Points for Jerseys.—Disqualifications.

BY MASON C. WELD.

The publication of a proposition for a Scale of Points for Jerseys by the American Jersey Cattle Club has set breeders thinking. Their thoughts, like those of the writer, have probably been influenced in one way or another by articles recently published in the *Agriculturist* and other agricultural journals; and it is with the hope of aiding to direct views into right channels that this article is offered.

We take it to be conceded that every breeder who aims at the improvement or even the maintenance of the best qualities of any breed of animals has an idea of what perfection is—that is, perfection in his view—and he breeds towards that. Were all breeders to agree in this ideal perfection, great diversities in the animals of different herds would soon disappear. The Devon breeders agree thus, and how wonderfully alike their animals are! Breeders of many of the varieties of fancy poultry agree almost exactly as to points, and their birds are so simi-

lar, that only a practiced eye can tell those of the same age and sex apart.

It becomes, then, a pertinent question: "Do we wish to breed Jerseys towards a generally-recognized ideal?" If so, we need an accurate "Standard of Excellence," consisting of a description and scale of points, and a plain statement of disqualifications. We have never seen this last in connection with any scale of

points for cattle, and deem it of the greatest importance—not for the breeder, but for the guidance of ignorant or prejudiced judges at fairs. (Note.—A man may be an excellent breeder and judge of Shorthorns or Devons, and be ignorant of the nice points in judging of Jerseys.)

It is clear that decisions at fairs should be made with precisely the same ideal as a standard, as that to which the most intelligent breeders strive to approximate.

Without the system of *disqualifications* which are rigidly adhered to in judging of poultry, we believe it would be impossible to present any such similarity of characters in fowls of the same breed as we now uniformly see at shows. Without a similar system in judging of Jerseys, and indeed of any other kind of live-stock, progress in the future will be discouragingly slow.

Without discussing a description of the points constituting a "Standard of Excellence," we suggest a few disqualifications, any one of which if possessed by any animal shall outweigh all good qualities, and prevent its receiving any consideration by the judges.

DISQUALIFICATIONS IN JERSEY COWS.

1. Barrenness at three years old.
2. Inability to yield one pound of butter daily up to six months after calving.
3. Milk drawn upon the fair ground exhibiting by the lactometer less than 15 per cent, by measure, of rich-colored cream.
4. Having, in whole or in part, a bay or red color similar to that of the Devons.
5. Being white or black without color or shades of color in the coat.
6. Having a white or nearly white nose.
7. Evidence of impurity of blood, either from general appearance or from the absence of a reliable pedigree.

DISQUALIFICATIONS IN JERSEY BULLS.

1. Failure as a stock-getter.
2. Absence of evidence that his dam would not be disqualified by Nos. 2 and 3 of disqualifications in Jersey cows.
3. Bay or red in whole or in part, as No. 4 of the same.
4. Black or white without color or shading, as No. 5 of the same.
5. Having a white nose, as No. 6 of the same.
6. Evidence of impurity of blood, as No. 7 of the same.

These "disqualifications" are suggested, and perhaps others might be added, because we consider that few, if any, of our best American breeders would allow an animal to remain in his herd possessing any one of them. We know that white noses, or rather pink ones, have occurred in well-bred herds, and the animals have been used as breeders, that black Jerseys of undoubted purity of blood occur, and that a great many beautiful-looking cows, in herds too not unknown to fame, will not make on an average a pound of butter a day for six months, much less produce that amount or more daily "up to six months after calving." Still, no one would buy such an animal to improve his herd, and surely one failing in any of the points indicated should not receive a prize of any kind at an agricultural fair or cattle show. When all the animals presented at our fairs pass without being disqualified by such a scale, it will be time to make the test still more rigid.

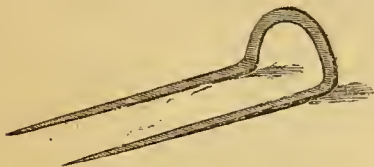
No man about to purchase would find any difficulty in satisfying himself in regard to the points covered by the "disqualifications," and it is not too much to require the judges to be

equally vigilant and careful in not placing the Society's indorsement upon an animal which he would not add to his own pure-bred herd.

Will not Jersey breeders and Scale-of-Points makers consider and criticise these views?

A Ring for Pigs.

When pigs are to be turned into a clover field or a meadow, their natural propensity to root for their living must be curbed. No contrivance is so effectual as a ring. One of the best rings for this purpose (that is not a ring) is shown in the above engraving. It is made of soft iron, or horseshoe-nail rod, and when inserted into the pig's nose and the points bent,



RING FOR A PIG.

it can not come out. It should be inserted from the front of the snout and the points bent downward. The curved part should be turned forward and bent down securely.

CARE OF MANURE IN WINTER.—It is quite easy to prevent manure from becoming frozen during the winter. By proper management, it may be worked over so as to be made in the best condition on the opening of spring for use on grass land to be plowed for corn, or fine enough to harrow into plowed land. To effect this, it should be kept piled in a compact heap, in which shape it will ferment, and maintain sufficient heat to resist the severest frosts and melt all the snow that may fall upon it, and so keep moist enough to prevent fire-fanging. The heap should be turned once or twice, and the outside coarse manure put into the center. By this treatment early in spring, it may be made fine and perfectly well-rotted.

The Better Education of Farmers.

We are apt to take too much of a dollar-and-cent view of the question of agricultural education. In so many years, a young man could earn so much money; will it *pay* him to give this up in order that he may get an education which will enable him in later life to make more money than he could without it? Will any education that can be gained at schools make a better money-getter of a boy than would the same amount of time and attention given to learning the practical operations of the farm?

Without stopping to answer these propositions—which are foreign to our purpose—we desire to call attention to other considerations that must have weight with all thoughtful persons. The greatest prosperity of farmers, as a class and individually, must come from causes which will advance farming as an occupation. No permanent and satisfactory prosperity can attend any calling which is not held in good repute, and no calling in these modern days can be held in good repute which is not represented by at least a fair proportion of men of education and intelligence. In the so-called “professions,” in mechanics, and in trade, the tendency is toward better and better education and a more and more cultivated intelligence,

and the degree of respect in which they are severally held is in all cases proportionate to the intelligence of its representative men.

In the future allotment of honor and influence, and consequently of prosperity, that calling will take the lead whose representative men are the most distinguished for education and cultivation, and that will fall to the rear in which there has been the least progress in these respects. The road of the future is an ascending one, and progress over it is to be secured much more by the aid of mind than by the aid of matter. Those who take and keep the lead in the race will do so because of their brains rather than of their bodies, and the leadership will imply control over those who are behind (and therefore beneath) them. How far their rule will be merciful will depend on conditions which we can not now foresee, but that they will rule is as certain as that mind has always ruled over brute force. If farmers can take the lead, farming will be a favored and a fortunate occupation. If they must fall to the rear, it will be a degraded and an unfortunate one. Whether it is one or the other, depends on the extent to which farmers are educated and enabled to stand a fair chance in the “struggle for the lead,” and our successors will be the lords of the land or a down-trodden peasantry, according as they are educated or not. We assume, of course, that prosperity and intelligence will go hand in hand, and that as we gain in education we shall gain in wealth. At the same time, we believe that the best chance for the future of our craft lies in the ability of its representatives to take a high stand for education and intelligence. Believing this, we long for the better general education of farmers; not of those of the farmers' sons who are destined for other occupations, but especially for those who are to stay on the farm. Let us bring better-trained brains to the performance of our work, and shed the light of cultivation and refinement over our hearthstones, and we may confidently look for a success which mere wealth could not secure.

CARE OF LAMBS.—Sheep are the only farm stock that have retained or advanced their actual value in the market during the past year. It is therefore for the farmer's interest that he carefully watch his ewes and lambs at this season. Ewes need better care than wethers, and should be removed to pens where they can be looked after daily. As they near the time of lambing, they should be again removed to a warm, dry pen and watched closely. If the lamb comes weakly, it should have a mouthful or two of warm milk until it is active enough to suck. If it should become chilled, let it be removed at once, and warmed and fed until restored. But there will be few weak lambs if the ewes are fed previously with good clover hay, a few roots, and a handful of oats daily. No hogs should be permitted near a pen of lambs; and the tamer and more gentle the sheep have been made, the less danger there will be of the ewe resenting any interference either with herself or her lamb, and disowning it in consequence.

POOR BUTTER.—The produce dealers in New York are complaining of the quality of the butter. They say more butter is sold for grease at 16 cents a pound than of first-class butter at 30c. or 40c. a pound. They desire the factory system in making butter to be extended, as in the cheese manufacture.

Farmers Hiring Help in Cities.

BY PETER HENDERSON.

The city papers are discussing the troubles that are found with our autoerats of the kitchen, but never a word is heard of what our farmers, particularly those far removed from the city, endure with the help of the farm. I believe it is the experience of the majority that if they have to hire six men in the course of the year, two at least will quit before they have been twenty-four hours domiciled. This is not even the worst of the difficulty, as appears by the statement of a farmer who called on me the other day. It appears that there is an organized system of swindling in this business which has long been carried on, though, as far as we know, it has never been exposed in the *Agriculturist* or other papers read by farmers.

The swindling game is played in this way: A farmer or gardener wants men; after selling out his load of produce, he drives his wagon up to one of the many emigrant intelligence-offices in Greenwich street. The fees of the “office” man are \$3; \$2 to be paid by the farmer who hires, and \$1 by the man who is hired. Of course the emigrant has no money, and the farmer advances the \$1. The “help” gets into the wagon, and is driven to the ferry. The farmer in the rush there is occupied with his team, so that it is an easy matter for the “help” to slip from the wagon and get out of the sight of his new employer. If the farmer has time to return to the intelligence-office and state the fact, the worthy in charge there pretends to be astounded at his tale, and vows all kinds of vengeance the first time he again sets eyes on the “thafe of the world.” It is needless to say that the keeper of the intelligence-office and the “emigrant” are confederates, and that there is division of the fee received from the unfortunate farmer. It may be supposed that this is rather a small business, but as one man may so “jump the fees” three or four times a day with different farmers, it will be seen that it pays the rascal much better than honest labor. Besides, every now and then, when a farmer is found to be credulous enough, they impose on him in other ways. My informant stated that an old gentleman, one of his neighbors, not only paid the fee of \$3, but advanced the honest youth he had hired \$3 more to pay a washing bill which his conscience would not permit him to leave the city without paying. Pat's washerwoman lived in the neighborhood of Fulton Ferry—just the way the old farmer was going to reach his farm on Long Island. Pat would step out and pay, and be back in a minute. He did step out, and the minutes ran into hours. The conscientious emigrant had evidently lost his way, for he never returned, and the old man jogged on moralizing perhaps on the pitfalls set for age as well as youth in this wicked Gotham of ours.

The lesson to be learned from this is to take a sharp look at your “emigrant” before you hire him. If you have seen much of this class, it will be easy to distinguish the counterfeit from the honest seeker for hire. The swindler is usually a denizen of the lower wards of the city, and is a professional “repeater” at the polls as well as at the intelligence-offices. He has long since thrown off the old-country brogans and frieze-coat, and faded patent-leathers and a long-tailed garment of black usually take their place. He has a look about him which, if you come near him in a crowd, makes your thoughts quickly revert to your watch or your pocket-book.



THE SHEPHERD OF THE LANDES.

Les Grandes Landes, or the great heaths or barrens, is a district in the south-west corner of France, stretching from Bordeaux to Bayonne, a distance of over a hundred miles in length, and from the Atlantic Ocean on the west thirty miles inland. This piece of country is of the dreariest character, and were it not that the high road from Western France to Spain passes through the center of it, it would be deserted altogether to its ragged sheep and three-legged shepherds. It is a wretched sandy waste, bounded on one side by sand-hills and salt-marshes of the coast, and thence stretching eastward, a barren plain, occupied by a stunted vegetation of prickly bushes, starved pines and heaths, which grow, or rather barely exist, in the soil of loose sand and gravel. The inhabitants and their dwellings are equally wretched, and very few and scattered. Probably the first sight that would strike the attention of the traveler crossing these plains would be a strange thing moving along in the distance, not unlike an ostrich that had had its neck cut off; the long legs making immense strides, and the rough hairy or feathery body jerking and swinging in its progress. By and by other similar objects would be descried in the distance, stationary, and with three legs stretched out like the legs of a long stool. As they are approached these figures are seen to

be human beings, probably men, but as they are dressed in sheep-skins and their clothes are cut in a strange manner, one can not judge of their sex very well, and when they are found, on close inspection, to be knitting socks or caps, or something else, the state of doubt becomes perplexing. It is more so when the diligence or stage stops at a miserable hut near a stable, to change horses, and one sees several of these creatures, all dressed in trousers and jackets of sheep-skin, with the same sort of woolen caps upon their heads, and the only guess one can make is, that that one with a beard on his chin is a man; but it may turn out wrong after all, for this is not a sure guide amongst these people always. Just here a flock of sheep may be seen, too, as rough and ragged and wo-begone as their owners, one of whom probably looks down upon us from above the gable-end of a house, on the point of which he rests his elbows and supports his chin. Another will be knitting away, resting himself

on his three legs, two of which are long stilts, often a dozen feet or more in length, which he calls *échasses*, and the third is a staff which has a hooked handle which he sticks into the belt behind him, and thus prevented from toppling over, he will stand and jabber away with the driver in a strange *patois*. When away at their professional duties, tending their ragged flocks, these poor people find these long stilts useful to enable them to step over the prickly bushes with which the *landes* are thickly studded, also to see their sheep, and to point out to their dogs the direction in which they have gone, when they are to be gathered together. Thus mounted, too, they don't get sand or stones in their shoes, and walking is more agreeable and the ground is got over much more rapidly. The engraving, which represents one of these shepherds, shows him and his flock and dogs taking a resting spell. But the sheep evidently have had their best coats put on to have their picture taken.

A New Japanese Cockscomb.

Last fall, Mr. James Vick, the well-known seedsman of Rochester, N. Y., sent us specimens of a Cockscomb that were in both form and color quite unlike any we had before seen. The seeds were sent from Japan to a lady friend of Mr. Vick by her son, and we have the original bag in which they came, which is interesting as showing the state of the seed business among the Japanese. In the engraving, we have given a reduced single flower-head, and the habit of the plant in a drawing still more reduced. The flower-head of all Cockscombs is a curious abnormal development, and consists of flattened flower-stems grown together in a mass which bears some resemblance to the rose-comb of a cock, and naturally enough suggested the popular name. The common Cockscomb of our gardens (*Celosia cristata*) in its natural state shows none of the peculiarity for which it is so much prized. Instead of producing its flowers all in a compact mass, it is a regularly branching plant, with its flowers in pyramidal panicles. In this Japanese plant the heads are much less formal than in the old one, and the plates or "combs" of which they are composed are not soldered so closely together; their edges are free for a considerable distance, and ruffled, which gives a much more pleasing appearance. The plant branches freely, and produces a great number of heads. The color is one of surpassing brilliancy and beauty. Scarlet hardly describes it, as it seems to us as intermediate between scarlet and carmine. Not only are the flower-

can, from the specimens sent us, readily accept Mr. Vick's statement when he says: "A single plant being an object of great beauty, while a bed containing a dozen plants is not equaled,

of a rich, excellent, sweet flavor. For the dessert, and of the highest excellence for cooking. Season, from October to January.

Originated upon the farm of Thomas Miner, near Mystic Bridge, Ct. The original tree died some years since, but the grafts have been disseminated, and it has a high local reputation. The tree is a good grower, and bears abundantly.

TREE SEEDS.—Numerous inquiries are made regarding tree seeds. Some seeds will germinate if kept and sown like ordinary seeds. Others need to be soaked before sowing, and others still will not come up well unless they have been exposed to freezing and thawing during winter. Unfortunately, there is no work which gives full directions to meet every case. Indeed, the work on tree culture has yet to be written. Elm and the Silver and Soft or Red Maples mature their seeds in June, and must be sown at once. The nuts, such as hickory, black-walnut, chestnut, etc., are best sown as soon as gathered, but may be preserved by mixing with plenty of dry sand, and keeping in a cool place. Seeds of native forest trees that have a hard shell may, as a general thing, be mixed with earth in a box, and exposed to freezing. Locust seeds, both Black and Honey, may be treated in this way, or if kept dry through the winter, must be soaked before sowing. Osage Orange must be sprouted, by being kept moist and in a warm place

for several days. Seeds of all the thorns and those of the cedars can hardly be induced to start under two years. These are mixed with earth and left for a year in a heap, sub-

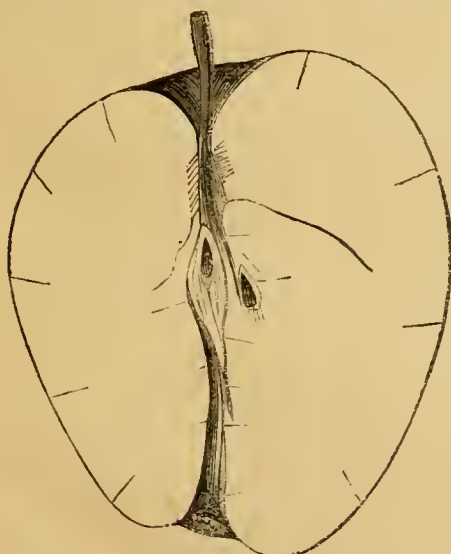


VICK'S NEW JAPANESE COCKSCOMB.

for a garden display, by anything we are acquainted with." If we mistake not, this new Cockscomb will be a formidable rival to the *Amarantus salicifolius*. We notice that Mr. Vick calls this *Celosia Japonica* in his catalogue, a name which, if we mistake not, has already been applied to another plant of the same genus.

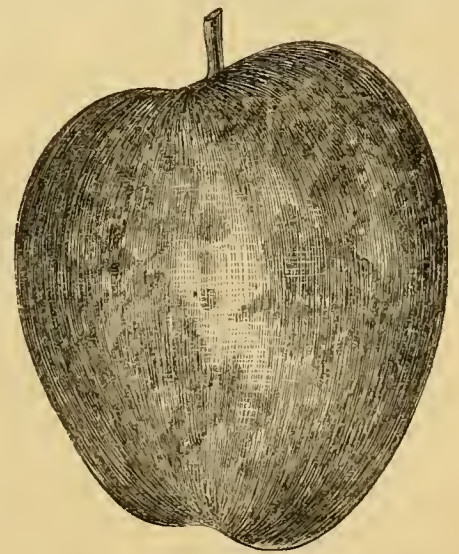
The Peaked Sweeting.

One of the numerous native seedlings of Eastern Connecticut is the Peaked Sweeting, a late fall and winter apple of the highest excellence for cooking. It is quite generally distributed in the towns of Groton and Stonington, and wherever known is preferred to all other sweet apples for baking. We believe it has never been propagated by the nurserymen, but is much more worthy of it than many popular varieties. It is not a handsome or large apple, and has nothing but a luscious saccharine flesh to commend it. In size it is medium, under good cultivation; oblong ovate, some specimens oblong, a little irregular; smooth, greenish yellow, with marblings of green, and dots and patches of russet, nearly all russet about the eye; stem short and small, in a rather narrow, deep cavity; calyx large, closed, in a rather shallow basin; flesh yellowish white, fine, tender, juicy,



PEAKED SWEETING—SECTION.

heads colored, but the whole stem and the veins of the leaves are similarly tinted. We



PEAKED SWEETING.

jected to the weather, and sown early the next year in light, rich, well-prepared soil.

Rosebuds in Winter.

BY PETER HENDERSON.

In the *Agriculturist* for May, 1871, was given what we then considered to be the best method of forcing roses in winter, but later experiments on a large scale have shown that the system then practiced, that of growing the plants in pots or tubs, is not so good as to plant them out on a bench or border prepared specially for the purpose. Last season, in August, we planted out a bed five hundred feet in length by eight in width, with large plants that had been forced in pots the previous season. They were then covered with mildew, and were a sorry-looking lot, but by the middle of September the mildew had entirely disappeared, and we managed to keep them in vigorous health, entirely clear from mildew or other disease, until the following June. The bed in which they are planted is a boarded bench or table, having only seven or eight inches depth of soil. This, however, will not be enough to carry them through more than another season, and it will be necessary to increase the depth of soil by lowering this temporary bench to a bed prepared under it. We find that the size of the buds is much increased when the roses are planted in solid beds.

Acting on this knowledge, we are this season erecting a structure 40 x 100 feet, and have prepared the rose-beds as follows: We have run a brick wall around the eight-foot-wide beds 20 inches in high, with two rows of "pigeon-holes" at the bottom, for the double purpose of giving perfect drainage and admitting air to the roots. The soil used is equal parts sod, scrapings from a paved street, and well-rotted cow-manure, all thoroughly mixed together. The bottom of the bed is rounded slightly from the center to the sides, so that the surplus water may pass off freely, and to prevent the roots from striking down into the cold subsoil we have cemented the bottom of the bed. In fact, the manner of preparation of the bed or border is exactly similar to that for a vinery border, except that our rose borders are inside the house, and elevated 20 inches above the walks. I have given the composition of the soil we are using, and which we know to be excellent, but where street clearings are not attainable, two parts sod and one manure will probably do quite as well.

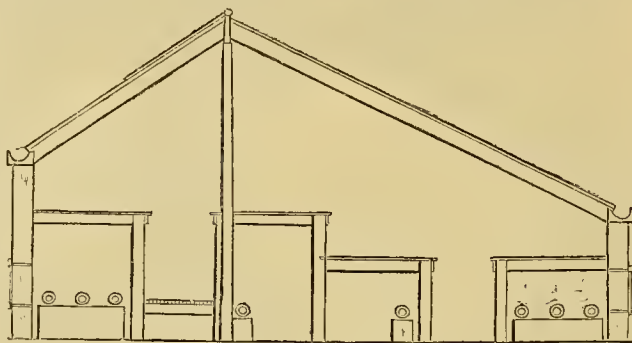
We are planting out our new houses exclusively with Safrano (deep fawn color), except at each pillar we plant alternately a Mareschal Niel (golden yellow) and a Climbing Agrippina (dark crimson). The Safrano will be the main crop, as we find it so far the most profitable and satisfactory.

The houses now erecting are span-roofed, equal on each side, and facing east and west. This style was necessary from the position we were compelled to place them in, but for choice we still prefer the half-span style, described in "Practical Floriculture," the end section of which is here given, making the center bench, however, in the manner described in this article.

There is a general impression that the glass should be stripped from the rose-beds in summer. This, we believe, is not only useless but injurious. In the vicinity of Boston, where roses are grown better perhaps than in any section of country, the rose-houses are nearly all fixed

roofs, except the sashes for ventilation, and the plants, which in many of them have been growing for three or four years, are now immense bushes in the most perfect health. But to keep them in health of course requires work. The plants must be syringed freely twice a day, and the paths freely watered, to keep a moist atmosphere in the house. To modify the sun's rays, the glass should be painted with raw oil from June 1st to September 1st. Oil we find to make the best shading for this purpose, whitewash darkening too much. In painting the glass with oil we use a sponge attached to a stick, and remove it by sponging it off with boiling water.

The leading varieties grown have been Safrano and Bon Silene, with lesser quantities of Lamarque, Mareschal Niel, and Isabella Sprunt, as few others are sufficiently prolific flowerers to justify their being grown for buds in winter. There has been a want of a deep crimson shade,



SECTION OF ROSE-HOUSE.

which I am in hopes the Climbing Agrippina will supply. The form and coloring of the bud is splendid, but we have not yet had an opportunity of testing its flowering qualities. The temperature requires to be raised somewhat to suit the nature of the different sorts; for example, if Mareschal Niel and Bon Silene and Safrano and Climbing Agrippina are to be grown in the same house, and there is any difference in the temperature of one end over the other, we would plant the first two sorts in the hottest end, as they require a temperature of 65° at night, while the other two will do well at 60°.

Porous or Non-Porous Pots for Plants.

BY ISAAC BUCHANAN.

I am now under the impression that there is no material for pots so conducive to the well-being of plants as iron. My attention was first drawn to the subject by noticing the luxuriant and healthy growth of plants grown in iron vases, and fully exposed to the sun even in our very hottest weather. Plants grown in marble and stone vases are as nothing in comparison with those made of iron. I can only account for this difference from the fact that iron is the better conductor, and thus applies a bottom heat to the plants. I have pots made of strong galvanized iron that have been in use for nearly a year for growing Palms, such as *Latania Bourbonica*, Dates, Cocoanuts, etc., and have found them to answer admirably. I have no doubt that they are superior to porous or clay pots for specimen plants of any description, and they are not so likely to be broken by accidents. They can be manufactured, when the size is one foot in diameter, for say a third more cost than clay pots; I have not tried any smaller sizes. Were these pots to come into general use, there is a plenty of inventive genius in the country to devise means for manufacturing them cheaply. Tin-plate would be strong

enough for pots of small sizes, and would last some time before rusting. I trust that some of our specimen plant-growers and enterprising nurserymen will make a trial of the pots I have here described for their own satisfaction, but let no one patent them, and thus deprive the public of the benefit of my suggestion.

Notes from the Pines.

A friend at the West writes, "Why do you not give us more Notes from the Pines?" and then adds a compliment that modestly forbids me to repeat. My first reason for not writing more is, that I do not believe in writing unless I have something to say. I have noticed that those who write serial articles of this kind, often write against space, and I prefer a blank of several months to writing regularly and filling columns when I really have matter for only ten lines. Now I am in *winter-quarters*. The fine autumn allowed the work of the season to be well disposed of. As I have no greenhouse, some of the tender plants are in the cellar, and others, such as Tea-roses, Carnations, and the like, are in pits. The few plants that I keep for *window culture* have fairly recovered, and are adapting themselves to their new home. I have much enjoyed the Catalonian Jessamine, a plant I had not before tried for house-blooming. Peter Henderson sent me a couple of pots of it early in the season, and it has given its exquisitely perfumed white flowers for over a month, with an abundance of buds yet to open.

There are still odds and ends to be done, as the weather will permit. Among these is the pruning of my

Grape-Vines. The work may be done quite as well in February or later, but if one wishes to propagate from the prunings, it is much better to do the work in the fall. It is very comfortable to be able to offer a friend a dozen grape-vines, more or less, and with this in view I always put in a lot of

Cuttings of Grapes, Currants, and Gooseberries. If the pruning is done in the fall, the wood will not be exposed to the cold and drying winds of winter, and a much larger proportion of cuttings will live if the wood be taken off in November and December than from that pruned away in February and March. Not only is the wood in better condition, but if the cuttings are made and put in before the ground freezes, they have a much longer time to think over, and a greater number make up their minds to grow than if hurried in their decision, as they are when set out in the spring.

Gardeners' and Nurserymen's Secrets are usually very simple matters, but simple as they are, they often determine between success and failure. In putting out cuttings of these kinds, one of the "secrets" of success is the simple matter of having the soil in close contact with the cutting. Mere tramping it in with the foot is not enough; it should be pounded close against them with the edge of a board, or some such implement.

Ornamental Shrubs are not forgotten in filling my cutting-beds. Many of these root readily if treated as above directed, and what more acceptable present can you make to a friend in the spring, than a neat parcel of flowering shrubs that you have grown yourself? Forsythias, Syringas, Weigelas, and many others, grow readily from stem-cuttings, while others, like *Pyrus Japonica*, *Calycanthus*, etc., are more properly grown from pieces of the root.

But aside from a little work of this kind,

which is really more play than work, there is but little left to do outside. We shall soon be receiving the

Catalogues for 1873 from seedsmen, florists, and nurserymen, and here is often pleasant reading. A real horticulturist never ceases to be delighted at the sight of a new catalogue. It is very pleasant to read the names even of our old favorites, but then there are the novelties! To be sure, when we try these new things, nine out of ten of them turn out to be trash, but we once in a while draw a prize. *Amarantus salicifolius*, introduced last year, is good enough to make us forget many failures. Seedsmen are often blamed for selling seeds of plants that prove to be of "no account." Things are introduced abroad, and our seedsmen procure them and sell them by the foreign descriptions. Certainly this is fair, and the very people who rail at the dealer when these novelties turn out the reverse of satisfactory, would be the first, should he wait a year to test the new seeds before he offered them for sale, to charge him with a want of enterprise. As no man should lend money with any expectation of getting it back again, so no one should invest in horticultural novelties unless he can afford to risk his money upon a doubtful chance. Those to whom the very pleasure of testing a

new thing is not sufficient return, had better not invest, but stick to those seeds that have been well tried. Fortunately for horticulture and for seedsmen, there are so many ready to prove all things, that the trouble in the case of a well-recommended novelty is not to find customers, but to supply seeds to those who order. The same remarks apply to new

things offered by florists and nurserymen. I hoped this fall to put up a *greenhouse*, but I could not find the time to attend to the details. Upon looking over the advertisements in any of the English horticultural journals, I can find at least a dozen kinds of ready-made houses of styles and at prices that I would jump at, were such things to be had here. From the simplest glass-coping for a wall, through different kinds of "lean-tos" to elaborate span-roofs, houses of all kinds, in iron and wood, and portable at that, are to be had for the ordering. There should be sufficient demand for such structures in this country to warrant at least one establishment. Whoever first devises a cheap style of house with an inexpensive heating apparatus, will, I have no doubt, find all the business he can attend to.

There is not so much in the *English Horticultural Journals* that is practical, as there is in our periodicals, and the climate is so different, that were one to follow their teachings, he would find himself, as many have, quite run aground by his pilot. But I do like to read their accounts of fine parks and places, and their wonderful discussions are a source of great amusement, but better than all I like to read their advertisements. We are not, after all, up to our English brethren in devising names for horticultural fixtures and appliances. Does frost injure your peach-trees?—Then grow them under the "Port-

able Fruit-tree *Crymboethus*." If this is not sufficient protection, cover the glass with "*Frigi-domo*," and increase the temperature inside by means of a "*Calorigen*." Should the trees grow out of bounds, you can shorten them with an "*Averruncator*," and should scale, mealy-bug, and the like molest, you have only to apply some "*Phytosmegma*." Truly it must be lots of fun to "horticult" in England.

New Roses at Lyons.

Lyons, in France, is celebrated for its rose-culture, the climate being especially favorable to the development of this favorite flower. It has been our fortune to meet with but very few enthusiastic rosarians, but these have met with a success which should induce others to make a specialty of rose-growing. There is a common belief that our climate is unfavorable to the cultivation of the rose, and this in a measure is true, but with good culture most gratifying results will follow. We give a catalogue, prepared by M. J. Sisley, of the new varieties offered at Lyons for the first time, which gives the name, class, color, and the name of the florist who raised each. These florists have

Name.	Class.	Color.	Originator.
Amazone.....	Tea-scented,	Dark yellow,	Ducher.
Anna Ollivier.....	"	Light rose,	"
Antoine Alléon.....	Hybrid Perpetual,	Cherry,	Damaizin.
Belle des Jardins.....	Provence,	Purple-striped white,	Guillot Fils.
Bouquet d'Or.....	Noisette,	Dark yellow,	Ducher.
Claude Levet.....	Hybrid Perpetual,	Crimson,	Levet.
Fernando de la Forest.....	"	Rose,	Damaizin.
Henry Bennett.....	Tea-scented,	Light pink,	Levet.
Marie Accary.....	Noisette,	White,	Guillot Fils.
Marie Arnaud.....	Tea-scented,	Yellow,	Levet.
Marie Cointet.....	Hybrid Perpetual,	Rose,	Guillot Fils.
Madame Chavet.....	Tea-scented,	Yellow,	Levet.
" Docteur Jute.....	"	"	"
" François Japin.....	"	"	"
" Lacharme.....	Hybrid Perpetual,	Pure white,	F. Lacharme.
" Marcus Cote.....	"	Light red,	Guillot Fils.
Ma Surprise.....	Microphylla,	White shaded rose,	"
Marcellin Roda.....	Tea-scented,	White yellow center,	Ducher.
Mont Rosa.....	"	Salmon,	"
Perle de Lyon.....	"	Dark yellow,	"
Pierre Seletsky.....	Hybrid Perpetual,	Purple,	Levet.
Perle des Blanchés.....	Noisette,	Pure white,	F. Lacharme.
Reine Victoria.....	de Bourbon,	Vivid pink,	J. Schwartz.
Souvenir de la Duchesse.....	Hybrid Perpetual,	Purple,	Liabaud.
Thé à Bouquet.....	Tea-scented,	White-striped red,	"
Vallée de Chamounix.....	"	Bright yellow,	Ducher.

made an arrangement by which any one of them can supply the varieties raised by the others.

Keeping Vegetables and Fruit in Cellars.

The most common method of guarding vegetables and fruit against the frost during the winter months is to keep them in the cellar of the house. In avoiding the cold, most farmers rush into the other extreme, and damage them by too much heat. The windows are stopped, and the underpinning of the house is banked up all around with earth, and no place is left for ventilation. The heat makes the vegetables grow, the fruit rots, and the farmer comes to the conclusion that his cellar does not keep fruit or vegetables well. Probably heat destroys ten bushels of vegetables where the cold does one. If the cellar has a keeper it will generally perform its office well. The whole secret of success lies in regulating the temperature and the ventilation. One window at least in the cellar should be hung upon hinges, so that the temperature can be reduced by leaving it open, or raised by shutting it, as the weather outside varies. To do this perfectly, it is necessary to have a thermometer hung in the cellar, and not far from the window. This will of course be the coolest part of the cellar, and if the thermometer do not fall below the freezing point

the fruit and vegetables will not suffer from frost. In the daytime, in pleasant weather, the window may be left open, sometimes for hours together. In cold nights it can be shut tight. Even when it freezes outside, the window may be left open a little, and the temperature be very nicely regulated. The rule is to keep the cellar as cool as possible without freezing, and to maintain an even temperature. It must not go below 32°, and should not rise above 40°. We have a room partitioned off from the rest of the cellar, with a single window in it, for the purpose of keeping fruits, vegetables, salt meats, fish, butter, and other winter stores. It is some trouble to regulate the temperature, but it is much more trouble to have sprouting potatoes, rotting fruit, etc.

A New Wheelbarrow.

The English Mechanic gives an illustration, which we reproduce on the next page, of a new form of barrow, which has been "registered," which is equivalent to being "patented." The engraving is sufficiently explanatory of the manner in which it is built. The inventor claims that its durability over the ordinary form is tenfold. It can be built very readily, and requires no iron stays of any kind. Where the ends of the legs come together at the ground they are fastened by a couple of screws.

A Conservatory in Tasmania.

It seems strange enough to get letters on horticulture from localities like Tasmania, which in our school days we only knew as a place inhabited by savages. But the *Agriculturist* goes to the "ends of the earth" and the "isles of the sea," and if this thing keeps on we shall be obliged to drop the distinctive title of *American* and call ourselves *The Agriculturist* and let it go at that. Mr. Joseph Allen, of Longford, Tasmania, wishing a show-room or conservatory in which to show his plants, devised a circular one. He has two half-doors on the east and two on the west side; he uses half-doors for safety in cold weather and during strong winds, and places them east and west, as they are most favorable for him, in hot weather. Around the circumference of the house he has a narrow stage a foot wide, and in the center he has a circular stage gradually decreasing in size toward the top. This stage is arranged so as to revolve upon an axis. As the lower portion of the stage has to sustain a heavy weight it is furnished with several small wheels. He finds that this revolving stage is very useful, as the plants can be brought to the sun or turned into the shade, as they may require.

Mr. A. is a sensible florist, for he has a house in which to show off his plants to his customers. He would have to make a pretty careful search to find any such thing around New York.

COMPOST HEAPS.—It is reported as said by Dr. Voelcker, chemist of the Royal Agricultural Society of England, that the escape of ammonia from fermenting heaps of manure goes on but slightly; that while the escape is great from the heated central part of the heap, the ammonia is absorbed by acids formed by the decomposition and by the water present in the heap. All this goes to show that the manure heap should be kept well covered with absorbents, and that an occasional sprinkling with water is beneficial. Besides, good will result from copious sprinklings of ground gypsum or plaster.

The Coral-Berry (*Cocculus Carolinus*).

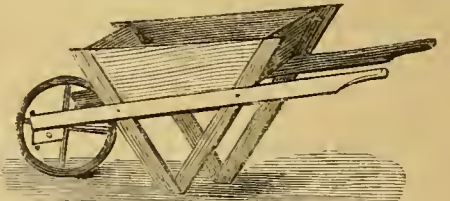
An October ramble in the woods in Georgia, although an unusually early frost had put them

name from *cocum*, a berry, was formerly a large one, but it has been divided up by botanists, and the best known member of it, that which furnishes the poisonous *Cocculus Indicus* of the shops (used to stupefy fish and to adulterate ale) is not now *Cocculus* but *Anamirta*. The name Coral-berry, very generally given to it at the South, is sometimes applied at the North to *Symphoricarpos vulgaris*, the Indian Currant. This little shrub does not need two common names, and it would simplify matters much if we would confine the term Coral-berry to the *Cocculus*, to which it is much more appropriate, and let the *Symphoricarpos* content itself with Indian Currant. But this matter of common names for plants is a too prolific one to be discussed here. The *Cocculus* has a bright green stem, seldom larger than a lead-pencil, and generally very slender. The leaves are from two to four inches long, very variable in form, being sometimes ovate, then heart-shaped, and again more or less lobed. They are downy on the under-surface, and late in the season thick and leathery in texture. The barren and fertile flowers are usually found upon different individuals (*dioecious*), but sometimes a vine will bear some perfect flowers. The flowers are borne in little racemes, as shown in the engraving, are inconspicuous, and greenish-colored. The fertile flowers have three to five ripen and form small, flattened berries, each one of which contains a single seed, which is curiously bent, so as to form almost a ring. Some years ago the Gardener's Monthly

scarlet berries are truly brilliant. It must be remembered that, in order to be sure of fruit, the two sexes must be grown. The Coral-berry or *Cocculus* is found in Southern Illinois, Virginia, and southward, but is hardly much farther north.

Exhibiting Vegetables at Fairs.

No part of a horticultural exhibition has for us more interest than the collections of vegetables. It seldom happens that due importance is given to this part of an exhibition, though of late years the Massachusetts and Pennsylvania Horticultural Societies have made a noteworthy advance in this respect. Even at the best exhibitions, while the fruits and flowers are shown in comely array, there is a sort of higgledy-piggledy air about the vegetables that is far from pleasing. At the recent annual exhibition of the Newburgh Bay Horticultural Society one



A NEW WHEELBARROW.—(See page 23.)

exhibitor took pains to arrange his contributions in something like order, and though he did not make the vegetables make the best show that they were capable of, yet his display was so much better than is usually made, as to attract general attention. We do not see the use in exhibiting carrots, turnips, and other roots with their tops. These usually get "mussed" in transportation, and soon wilt in the exhibition-room, and detract much from the general effect. This matter of exhibiting vegetables is attracting attention in England. A correspondent of the Gardener's Magazine urges that societies which offer prizes should stipulate that the vegetables be shown in trays of uniform size, and gives an illustration, which we here reproduce, of a collection which took the first prize for fifteen varieties at the late exhibition of the Royal Horticultural Society at Birmingham. The tray



CORAL-BERRY.—(*Cocculus Carolinus*.)

in an autumnal garb, presented much that was attractive to one who had been for many years a stranger to Southern vegetation. The winter states of many plants were interesting, and there were enough remaining seed-vessels and berries to keep one actively engaged in collecting. Some favored spots were enriched by the deep purple of the French Mulberry (*Callicarpa*), the berries of which attained a size and color and were borne in a profusion that our admired cultivated specimen could not approach. Then there were places fairly aglow with the bright scarlet of the Coral-berry, *Cocculus Carolinus*, a beautiful climber that ran over other shrubs to the height of ten or twelve feet, now by closely twining bringing its bright berries close to the support, and now hanging in graceful festoons from spray to spray. The *Cocculus* belongs to the Moonseed Family, of which the Moonseed (*Menispermum*) is a common representative in our Northern thickets. The genus *Cocculus*, which gets its

to five ripen and form small, flattened berries, each one of which contains a single seed, which is curiously bent, so as to form almost a ring. Some years ago the Gardener's Monthly



A TRAY OF VEGETABLES AT THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION.

called attention to the value of this plant as an ornamental climber. It is pleasing in its foliage, and in autumn and early winter its abundant

is four feet long, two feet wide, and two inches deep, and allows of a handsome display of its contents. A good example to our exhibitors.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Wall Decorations.

A book on Household Taste, by Sir Charles Eastlake, an eminent English painter, has been repro-

duced in this country, in elegant style, by Osgood & Co. The work is a vigorous fight against shams in architecture, furniture, and all household adornments. Most of his suggestions are so excellent that one would like to follow them, if it could be afforded, but for the present we must accept machine-made furniture instead of hand-made, and must use veneered articles because we can not afford the solid. He is very radical in his proposed reforms in household furnishings of all kinds, and while we can not follow him in all things, we can accept and make use of many of his hints. In his chapter on wall decorations he insists that, the wall being a flat surface, all ornamentation should be flat, and in this we agree with him. Shaded figures upon wall paper, which have the effect to make the figure stand out from the wall, are not so appropriate as a figure that is flat, without any shading. In the hanging of pictures he advises that each be hung by two cords which shall hang from nails at the border of the paper or the cornice of the wall. The reason for this is, that it does away with the triangle formed by a cord attached to two sides of a picture and suspended by a single nail. This triangle formed by the cord and frame does not agree with any other lines in the room, and the effect is inharmonious. This we consider eminently sensible. The difference in effect is seen by com-

When there are many pictures in a room he suggests that the monotony be broken by introducing brackets here and there for the reception of a statuette, vase, or other object. Brackets are now in very common use, and are sold in various styles in the fancy stores. Mr. Eastlake finds the ordinary brackets too unsubstantial, and gives an engraving of one made according to his views, which we here reproduce. This is certainly a good, honest, solid bracket, and able to bear any reasonable weight. Moreover it is more easily made than the more fragile ones. Ordinarily a portion of the bracket is cut in open-work ornamental figures, this being especially the case with the center-piece that supports the shelf. Our author objects to this, and insists that all ornament shall be subordinate to the thing itself, and whatever ornament there is, should be cut out of the work, as shown in the engraving. It will be seen that when the work is done he does not hang it by any concealed hooks, but puts it up with good, honest screws. This idea

of honesty in construction runs all through the book, and we hope the work will lead to something of reform in our household decorations.

Where to Set the Bread to Rise.

I suspect that a good many of my failures and partial failures in bread-making during the first half-year of my housekeeping, arose from the fact that the dough had not the right degree of heat when set to rise. My stove had no hearth worth speaking of, and if I set the sponge in the oven, it was pretty sure to get too hot, and so scald the yeast and kill its life. The fire was in the upper and middle part of the stove, and did not heat the floor underneath enough to keep the bread warm there. I used to open the oven-door and set the bread-pan on a stool close to the oven, covering it with a cloth. But how slow it would be in rising all that winter! In vain did I try different kinds of yeast, all well recommended.

I have never had a stove with a warming closet, and the reservoir is not large enough to set the bread-pan upon it, though I regularly set the kneaded loaves there to rise before putting them to bake. On cold days I dare not risk setting the dough in the oven to rise.

But I have learned a way which serves my purpose very well. I set an empty kettle upon the stove, put a short and narrow board across the top, not covering the kettle with it, and set my bread sponge atop of that, moving the kettle from the hot to the cooler parts of the stove, as the fire is fast or slow, or as the dough requires. A friend of mine has a rack hung from the ceiling, above her stove, where she dries fruit, etc., in the drying season, and she finds this convenient for raising bread.

I fancy that bread is more likely to be light and tender if it goes through each rising rapidly. A slow baking and a thorough one is best. Cultivate your judgment in this matter, by close watching, until you can bake the bread without its running over in the oven, or getting a very thick crust. I have been told that an hour is the proper time of baking, but my loaves seldom come out right in so short a time. Something depends on the size of the loaf, of course.

MARMAR.

Moths.—B. F. A. asks: "Will you inform one of your subscribers through your valuable journal if there is any way to get rid of moths in a house after they have once taken possession of your

closets and parlors, eating and destroying woolen clothes, carpets, etc., that have not been used much during the summer months?"—It is probable that the moth that attacks the carpets is not the one that injures the clothes. Woolen clothes should during summer be kept in a box or barrel so tightly closed that the female moth can not get in to deposit her eggs. When moths are already in the articles and at work, if they are numerous, put the things in a tight box and sprinkle abundantly with pure benzine, and keep closed for a day or two. Then air, to remove the odor of benzine. We have had no experience with carpet moths. Sprinkling with salt and with cayenne pepper has been recommended. We have no doubt that either alcohol or benzine would destroy them.

Home Topics.

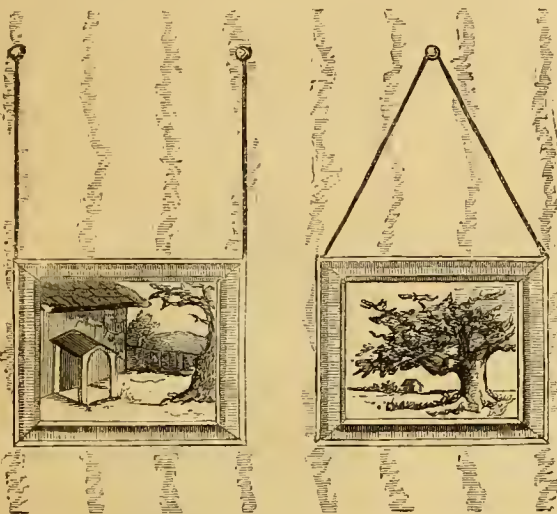
BY FAITH ROCHESTER.

TWO MEALS A DAY IN WINTER.—Some families find it necessary to have a six-o'clock breakfast. In that case, a dinner at twelve and a five-o'clock tea seem desirable. But when there is no hurry about breakfast, it is much more pleasant and convenient for the household to have only two meals—breakfast coming at half-past seven or eight, and dinner at two o'clock. This gives more time for the daylight labors of the family, and gives a long resting spell after the dinner work is done. It is a poor plan to pretend to have only two meals and really to have four—two regular meals and two irregular ones. Better three regular meals than that. At our house, there is now no hint of the need of a lunch between breakfast and dinner—not even by the baby, who is now not fifteen months old. Yesterday, grandpa took a long walk and had a twelve-o'clock dinner away from home. At dusk he thought he would like a bit of bread and butter and a cup of "cambrie tea" or "comfort" (I'll give you the recipe presently, if any one needs it! Grandpa has his regular "tay-tay," or black tea, at dinner, but it would disturb his rest if taken later). He ate his little supper in the presence of the children, and they, looking at pictures in the nursery, never said one word about being hungry or desiring something to eat. Baby has her cup of milk at night and usually a piece of bread in her hand—as much as she wants. Lately we had workmen here for a week, and had three meals a day for them, and the children had supper twice, but they were "hungrier" than usual the succeeding mornings—that is, they were more impatient for breakfast, but more dissatisfied than usual with it when they got it. I suppose their stomachs, having had less rest than usual, were more than usually exhausted by labor when morning came.

WINTER EVENINGS AT HOME.—Dear mothers and sisters, let us get it well into our heads and hearts that home-making is far, far above mere housekeeping. Good housekeeping is of very great importance, almost essential; but the real value of the house-work is as it makes home sweet and dear. Love is the essential thing, and it will indeed cover a multitude of sins—that is, it will lead to mutual forbearance and a desire to make others happy.

In the home-making business, these long winter evenings are both seed-time and harvest. During the day the children may have been at school, the husband and father absent at his business, and other members of the family scattered here and there, variously employed. Twilight brings the homelike hour for all who love and miss their home. If all the home-hearths were glowing then, if all the home-lamps were trimmed and burning, if all the home-makers (the mothers and sisters and daughters in particular—for home-making is woman's especial art) were fresh and loving and cheery and tidy, and free from engrossing toil at that hour, what a little heaven on earth might every home become, and where, then, would be the need of asylums and jails and reform-schools?

It will not do for us women to make ourselves slaves to the "men-folks" of our families, letting them feel that home is the place where they are to



Figs. 1 and 2.—TWO WAYS OF HANGING A PICTURE.

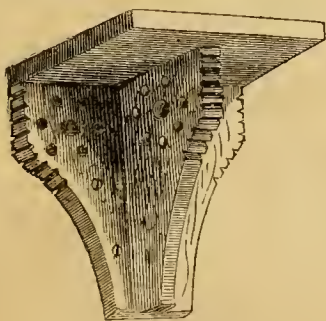


Fig. 3.—BRACKET.

paring figures 1 and 2. It is customary to hang pictures from nails with brass or porcelain heads, but unless one can find a "stud" in the right place, the nail will not hold, and a bad break will be made in the plastering. A good screw, put into a lath, will hold a much greater weight than any ordinary picture, and by boring carefully through the plastering it can be put in without defacing the wall. If it be desired to hide the screw, knots may be made of the picture-cord, or some other device used.

receive all the service and render none. For *their* sakes, we must avoid that. But let us look after our duties more carefully than after our rights. Let us try to do our part faithfully, and if our example does not stimulate the laggards, we can talk over with each delinquent the importance of each one contributing to make home bright and happy.

It is of the greatest importance that the little ones should go to bed *happy*—important for their healths and for their dispositions. And if we can all say "good-night," and sink to sleep with hearts kindly affectioned one toward another, it will help our souls' growth wonderfully. Then let us have pleasant, social evenings. Let us get the work all done up on the busiest days, if possible, before night comes; and if we have a clean frock and collar and a bright ribbon, let us put them on for the sake of the dear ones, whose happiness is surely affected by all these little things.

Now, who will read aloud? Yes, I *do* know how almost, and often entirely impossible this is if baby is awake. Selfish little babies! But it is the nature of a baby to be selfish, and we must conform ourselves to it more or less until it gets a little older. Games, then, or puzzles, or light work around the lamp.

Pray, tell me why should a woman's fingers be busy with knitting or sewing, and a man's or a boy's be idle or at play? Teach the boys to knit and sew, and when there is need they can employ themselves right usefully so. If they learn to improve their time while young, if they learn to love work, they will be carving out frames or brackets or napkin-rings or children's toys while the story is read aloud. If potatoes are to be prepared at night for the breakfast, why can not some masculine fingers do it?

About the reading—don't be too prosy if there are children among the listeners. It is best to read something that interests all, at least a part of the evening. Every parent who deserves the joy and honor of parentage, has a young spot in the heart, and can not fail to be interested in any well-written children's book or story.

WOOLEN WRISTLETS.—A pair of warm wool wristlets is about equal to an additional garment for keeping the whole body warm. The blood which the heart pumps into the arteries with each beat comes very near the surface wherever you can feel the pulse beating, as at the wrists. Keep these warm and the whole circulation is favorably affected. Knitted yarn wristlets are worn by old and young, male and female. They are three or four inches long, seamed all of the way usually, and may be finished at the hand by a narrow fringe, or crocheted border, or by a knitted ruffle. It is well to have two pairs for a change, and if these are of white or of delicate colors, daintily wrought and scrupulously clean, they are not unsuitable with one's nice dresses. A pair of white ones, with no fringe or ruffle at the hand, can be worn under linen cuffs.

BEANS WITHOUT PORK.—Some families seem not to know that baked beans are delicious without pork if properly cooked and seasoned. We believe in cooking them a long time—four or five hours in all. We often boil a pot of beans until they are cooked thoroughly soft, take half for one day's bean-soup, and use the other half a few days later for baked beans. We pick over and wash the beans as soon as breakfast is over, and put them over the fire, well covered with cold water, as soon as possible. If the beans are old we drop in a small lump or half-teaspoonful of soda. When this water boils, we turn it off, and supply its place with clean boiling water. After the beans have boiled in this water about an hour, we change the water again—sometimes three times, but never after the beans have begun to come to pieces. We set them where they will not boil too hard, and cook them four or five hours, when they are well softened and separated. Then we stir into this soup salt, and a cup of cream if we have it; if not, a table-spoonful or two of good butter. We take out half of the beans (if we have cooked enough for two meals) before seasoning the day's

portion, and sometimes thin what is left for soup with hot water, and then put in the cream and salt, and boil and stir it all together. When we bake the reserved portion, we pour it into a large baking-dish or dripping-pan, stir in a spoonful of salt and a cup of cream, or creamy milk, and bit of butter, and bake an hour. I can not believe that any one who tries it would prefer "pork and beans" to this. The most common mistake in cooking beans is to cook them too little. This is the cause of their fatulent tendency, and such result may be prevented by thorough cooking. The frequent changing of the water takes away the strong flavor which is disagreeable to many. Well-cooked beans are among the most nutritious articles of diet.

WINTER SQUASH.—I suppose that Hubbard squashes are baked more frequently than they are boiled nowadays. The chief difficulty is with the shells upon the table-cloth at meal-time. A few empty plates set here and there to receive the rind obviate this difficulty. No way of cooking squash suits us so well as steaming it. Cut off the rind, and cut in small pieces as for boiling. Allow a little more time for the steaming than for boiling potatoes, say three quarters of an hour, and when done it may be mashed and seasoned with a little salt, buttered over the top, with a little dash of black pepper, and it is ready for the table. Squash is rather slow in baking, requiring more time than potatoes. An hour is hardly too much time to allow for the baking of Hubbard squash. In boiling squash, cut into small pieces and put very little water in the kettle, filling up with boiling water if necessary, to prevent burning. The drier it is boiled the sweeter it will be.

Everybody knows, I suppose, that squashes of all kinds make excellent "pumpkin pies." Squash should be sifted through a colander after boiling (or steaming or baking), and treated in all respects like pumpkin.

"CAMBRIC TEA" OR "COMFORT."—This is also "Temperance tea" and "White tea"—nothing but hot water, milk, and sugar. But put the sugar and milk (you need put no sugar in my cup if you give me cream instead of milk) in the bottom of the cup, and pour the boiling water in *last*. The flavor is very perceptibly better than a mere cup of hot water seasoned with sugar and milk. This is very true of coffee also. Put the "trimmings" (as they say out West) in the cup first (having ascertained what each of your coffee-drinkers prefers), and pour the coffee into this. It does really make a deal of difference. "White tea" or comfort is useful when one wishes a warm drink simply, without any stimulant.

Which Paper?

When I was a little girl, I heard my father say regularly and often, toward Christmas, for several years, "We must not take so many papers next year." Then would arise some discussion about which of the papers should be stopped. It always resulted in the same way—as many or even more papers the next year. I am glad of it.

My friend Americus was the other day lamenting that so many periodicals came into the family, because no member of the family found time to read them all. He said it was better to take only one paper, and read that thoroughly. "Beware of the reader of one book," said he, quoting from somebody. "Why?" I asked. "Shall we beware of the reader of one book because he must necessarily be rather narrow-minded?"

But Americus meant, and I suppose his predecessor meant, that the careful reader of a single book would probably thoroughly digest his scant mental rations, and waste no particle of nutriment gained from it. The reader of one book is just the person to catch you tripping when you state any fact within the range of his one book. I suppose it is really better to read one book or newspaper with close attention and reflection than to merely skim a dozen books or newspapers, getting no clear idea of any-

thing. One who wishes to preserve and increase one's mental power should habitually do some careful reading—so critical and painstaking that it may properly be called *study*.

But I quite object to being shut down to one newspaper. I long for big libraries and full reading-rooms. I think it is a great privilege to be allowed to skip a good portion of every paper.

"But," said Americus, "there is the — now. It is well edited in every department, and there is nothing in it which it would not be profitable for you to read." So we took a number of the —, and turned through its pages. There were certain departments which I always read, and the contributions of certain writers were always welcome. But there was as much more in the paper which was not to my taste, though invaluable perhaps to a multitude of readers. There were pages that I habitually "skimmed," and I found the cream so gathered much more profitable for my use than the whole milk would be.

"But," said Americus, "here are these articles by —. Don't you read those? Why, they are excellent! Do read them. I would not miss them for anything."

"There it is," said I. "It is the nourishment you are needing now. But my mind is working in another direction and craves different mental food; and provided I believe that what it is seeking is good and wholesome, I am going to let it follow its bent. 'Eat what you crave,' says the sensible Dr. Hall, and I say read what you crave, and if it does you no harm, go ahead until you have had enough of that."

Parents should not be niggardly in supplying the family with reading matter. There is such a variety of tastes among its members that no one paper would be likely to meet the requirements of all. Provide only what is pure and profitable, but remember that fun is profitable to the health and intellect and heart. And do not be afraid of stories, only be careful that those you take into the family to influence your children as *only* stories can, are of noble purpose and of high, pure character. I know some excellent people who tell me that one of the best things their parents did for them in the way of education, was to leave them pretty much free to follow their own tastes in respect to reading, while furnishing only good books and papers, and plenty of those.

Where neighbors can co-operate, taking a variety of papers and magazines among the different families, and exchanging with one another, there is a saving of money outlay, and a gain in the way of neighborly intercourse. RELL.

"Splendid" Cake.—One cup of butter, two of sugar, four of flour, one of water, and four eggs. To the four cups of sifted flour add one measure of Horsford's bread preparation, or one teaspoon of cream of tartar and half a teaspoonful of soda. Beat the butter and sugar to a cream, then add the beaten eggs, next the water; after adding the flour, bake immediately. After the cake is ready for the oven sift over the pans dry sifted sugar, which gives the cake a meringue-like crust if the oven is not too hot.—W.

"Brown Betty."—The following recipe, given by Marion Harland, we have tried with much satisfaction: One cup of bread-crumbs, two of chopped tart apples, $\frac{1}{2}$ of sugar, one teaspoonful of cinnamon, and two teaspoonfuls of butter cut into small pieces. Butter a deep dish, and put a layer of the chopped apple at the bottom; sprinkle with sugar, a few bits of butter, and cinnamon; cover with bread-crumbs; then more apple. Proceed in this order until the dish is full, having a layer of crumbs at the top. Cover closely, and steam three quarters of an hour in a moderate oven; then uncover, and brown quickly. Eat warm with sugar and cream or sweet sauce. Serve in the dish in which it is baked. We do not use near as many apples as we might, with advantage in both economy and health. The "Brown Betty" here described is very good, quickly prepared, and utilizes scraps of bread that are often wasted.

BOYS & GIRLS' COLUMNS.

Our Guessing School. What Is It
No. 2.

The engraving given in November for you to study over was of such a rarely seen object that only a few boys and girls tried to make it out, and some of these came very far from the mark. Two or three were so nearly alike in merit that it was difficult to choose between them, as one mentioned some points that others omitted. The one that seemed to be on the whole the best description, is by Miss Abbie Adams, of Absecom, Atlantic Co., N. J. Good answers, though not so full as hers, were sent by Christopher D. Chandler, Fair Haven, N. J., Harriet J. Fisk, Sag Harbor, L. I., Rollo Shophelt, Niantic, Ct.,



SHELL OF PERIWINKLE.

Willie Calvert, Culpepper, Va., Townsend Wolcott, S. Norwalk, Ct., John B. Price, Stamford, Ct., Clarence E. Penniman, Cromwell, Ct., Robert B. Allertson, Hartford, N. C. Miss Abbie says: "It is the spawn of a shell-fish, called Winkle by many. Some might call it a conk, but it is known here by baymen and oystermen by the name of Winkle. The whole length of this curious thing (the spawn) is usually about two feet long, and when found in the bays in a perfect state, has one end imbedded in the sand or mud from 2 to 4 inches deep; this secures it to the bottom, but sometimes by the force of the waves and tide it is broken loose from its place and cast upon the shore, and the embryo Winkle is destroyed by being exposed to the hot rays of the sun in summer or the cold freezing of winter. The pods or receptacles, when taken from the water, are filled with a jelly-like substance; then again they are found in a more advanced state, containing the young winkles in their complete form, though quite small, about the size of duck shot, and a large number in each pod. I have seen them and handled them after my father has brought them from the bay, they being quite a curiosity to us, and I have also heard him tell how he pulled them loose from the bottom of the bay. I don't know what you will think of the name I have given the shell-fish that produces the article your engraving represents, but it is known in all these parts by the name of Winkle. I have seen numbers of them; they live in a shell, but can turn almost entirely out of it, and can suck fast to a board or other surface, and hold on quite strong. I have looked in Webster's Pictorial Dictionary for an engraving of this kind of shell-fish, but can not find any to represent it, neither do I find in it the word Winkle."

As Miss Abbie could not find an engraving of the shell, we give one here. Had she looked for Periwinkle, she would have found that word, which is also used for the same animal, though fishermen and marketmen generally call it Winkle. There are several species found upon our coast, the most common of which we have figured. It is from three to six inches long, and of a dark olive color. The animal that lives in this shell is very tough and coarse, but notwithstanding that, it is eaten, and is sometimes offered for sale in the markets. The shell is used by sailors and boat-builders to pour tar and pitch

into the seams of boats, the long portion answering as a convenient spout. The English Periwinkle is an entirely different animal from ours. The conchologists call the one figured *Pyruia cancellata*. The word *Pyruia* means a little pear, and was given because the shell is somewhat pear-shaped, and *cancellata* means channeled, or like a pipe or gutter. You can see that the drawn-out part of the shell is channeled, and I have just said that the sailors have found out its usefulness as a gutter. These strange-looking names that scientific people give to shells, plants, insects, and the like, are generally descriptive.

THE DOCTOR.

The Doctor's Talks — About a
Candle.

Perhaps you will wonder what there is to say about a candle that you do not know, and will be surprised when I tell you that I think that a candle is one of the most interesting things, and that to explain all about its burning would require a great many pages like the one you are reading. Many years ago one of the most eminent scientific men who ever lived, Sir Michael Faraday, gave a whole course of lectures just upon a candle. I do not expect to tell you so much as he did, for you would not be able to understand it all, but I think I can say something about a candle that will interest you. I wonder when candles were invented! It must have been a great while ago, for we read about candlesticks in the Old Testament. Perhaps torches were used before candles. Some of you have probably seen light-wood torches, which are often used in pine regions, especially in the Southern States. A dead pine will be found to have its wood full of turpentine, and when this is cut up into torches, it will burn with a bright though rather smoky flame. In this case the wood serves for a wick, and the turpentine that is dried in the pores of the wood corresponds to the tallow or other matter that we make candles of. There are several kinds of candles, but all agree in having a wick, and some solid material that will melt readily, and will burn when melted. We have all read of rush-lights, which in early times were in common use in England, and I believe that some of the poorer people still use them. They were made by peeling the stems of rushes so as to leave the light pith. A little strip of the outer portion of the rush was left to strengthen the pith, which, being very delicate, would break without this support. The rush-piths were then dipped in tallow or other fat, and formed a very poor, flickering kind of candle, for which the pith served as a wick. Our commonest candles are tallow-dips, and are made by dipping the wicks in melted tallow, the dipping being repeated after the tallow has hardened, until the candle is large enough. Tallow candles are now generally made in a mold. The wick being fastened in the center of a tin tube, the melted tallow is poured in, and when cold the candle is easily removed from the mold. Tallow candles are soft; mutton suet makes harder ones. Then they are made of spermaceti; paraffine, which is a curious product of coal; vegetable wax from Japan, and also from a vegetable wax yielded by our native Bayberry. It was a wonderful discovery that, by which the solid part can be taken out of lard and other fats. This is called stearine, and is what the nice, white, hard candles of the stores are mostly made of. The most expensive

Fig. 1.
SNUFF.Fig. 2.
SELF-SNUFFING.Fig. 3.
SECTION.

candles are wax, and these are not made by dipping, nor are they molded, but melted wax is poured over the wicks, which are hung on a frame, and the pouring is repeated until the candles are large enough, when they are finished and the surface made smooth by rolling on a table of hard wood. The wick in the common candle is of very loosely spun cotton, and after it has been lighted awhile we notice in the flame a black, unburned piece of wick (fig. 1), the "snuff," as it is called, which has to be removed by the use of snuffers. It was a very clever person

that invented the self-snuffing wick. The reason that a snuff forms in the candle is because the wick, being in the interior of the flame, is, as I shall show you at another time, quite shut out from the air, and can not burn. The invention consisted in so braiding or plaiting a wick that it would curve over and thus bring the end of it outside of the flame, where the air could reach it and it could gradually burn away (fig. 2), and thus save the trouble of snuffing. When we first light a candle, we do not get a very bright light, and we must wait until enough of the tallow is melted to supply the flame. Just watch a burning candle, and see how beautifully everything goes on. The tallow remains solid until it is needed for burning, and then just enough is kept melted to supply the wick. Then the candle itself forms a cup to hold the melted tallow. If the candle burns where there is no current of air, just see what a nice little cup is formed. The tallow melts just close to the flame, but the air keeps the edge of the cup cool, so that it does not melt for a while. If you were to make a cut right down through a burning candle, it would look like figure 3. So the candle is all the time turning the solid tallow into a liquid, taking it up in the wick, where in burning it gives us a beautiful flame. But what makes the melted tallow rise in the wick? That is an interesting point, which I will try to say something about another time.

THE DOCTOR.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMAS.

1. I am composed of 11 letters.
My 8, 10, 9 is a fish.
My 9, 5, 6, 11, 7 is an adjective which may be transposed into a verb and into a noun.
My 1, 4, 3, 2, 10 is a reptile.
My whole is a village in Central New York.
E. L. C.
2. I am composed of 24 letters.
My 12, 5, 3, 21, 8, 16, 12 is a continent.
My 23, 10, 5, 20, 6, 18 is a man's name.
My 3, 10, 13, 18, 6 is a bird of prey.
My 11, 15, 13, 2, 1, 15, 11, 13, 4, 18, 6 is a bird.
My 19, 17, 14, 7, 3, 24, 23 were used as engines of war by the Romans.
My 9, 2, 22, 11, 4 is a country in Asia.
My whole is before you. VIRGINIA E. S.

SQUARE WORDS.

1. Square the word "MERIT."
STAR AND CRESCENT.
2. ¹A number. ²Corroded. ³A term in music, meaning "time." ⁴To preclude. ⁵Used in carts. IOWA.

PROVERB PL.

With the following forty-seven words make eight well-known proverbs:

A good counsel freely gives a judge his price.
Necessity never makes a misfortune of wit.
He who all day gives every dog the go-by, must have brevity of soul.
Twice beginning is to make good ending.
Virtue, above appearances, is never good; meet half-way.

ANAGRAMS.

1. Rebel in mince-shop.
2. Agile rust.
3. Pieced love.
4. Angel Ziva.
5. I hant time.
6. Notes ran.
7. Snug Lot out.
8. I class them.
9. Die lying.
10. Rats pnt.

CROSS-WORD.

My first is in peach but not in plum.
My next is in hand but not in thumb.
My third is in rat but not in mouse.
My fourth is in room but not in house.
My fifth is in Bill but not in Sam.
My sixth is in sheep but not in lamb.
And now, if the letters you rightly take,
The name of a little girl they'll make.

MARY JACOBS.

DOUBLE ACROSTIC.

The initials name a certain kind of stone used in jewelry, and which derived its name from the river in Sicily near which it was first found.

The finals name that which we have been taught to shun.

1. One of the signs of the Zodiac.
2. A Southern State.
3. An insect.
4. A plant.
5. Evasion.

R. T. ISBEE.

PUZZLE.

An R, an L, an A, and a D,
Two Ns, three Os, and only one V.
Now take an M, and add three Ts.
Four still are left, and they are Bs.
By putting these together right,
A well-known proverb comes to light. ANNIE.



THE OLD NURSE'S VISIT.—PAINTED BY T. HOVENDEN.—Drawn and Engraved for the American Agriculturist.

ANSWERS TO PUZZLES IN THE NOVEMBER NUMBER.

ANAGRAMS.—1. Philosophical. 2. Phenomena. 3. Subservience. 4. Inconstant. 5. Organization. 6. Assimilated. 7. Cognizance. 8. Subordinate. 9. Inaccessible. 10. Continuance.

COMPOUND ARITHMOREMS.—1. Potato. 2. Contention. 3. Portfolio. 4. Zoology. 5. Addition. 6. Patent. 7. Boneless. 8. Fortify. 9. Extend. 10. Exonerate.

BOUR-GLASS PUZZLE.

ORLEANS
PIGMY
COD
T
DIN
ASSAY
CONTEMN

SQUARE WORD OF SIX LETTERS.

KETTLE
EARWAX
TREATS
TWAITE
LATTER
EXSERT

NUMERICAL ENIGMAS.—1. New York Tribune. 2. Gertrude.

PUZZLE.—Hearth and Home (heart, hand, home).

TRANSPPOSED PROVERB.—In the absence of the feline face, the mice give themselves up to various pastimes.

CROSS-WORD.—Cincinnati.

ILLUSTRATED REBUS.—Sandy Hook (S and Y hook).

AUNT SUE'S NOTICES TO CORRESPONDENTS.

AMANDA VELSOR.—In the "alphabetical arithmetic" the letters represent figures. Haven't you got some big cousin or an Uncle John who will show you how to puzzle it out?

A BEGINNER.—Had you not better select a little more definite name?

JERE PLUMER.—Your "criticisms" were very much to the point. The answers to 428 and 429 in August number are—"Two sparrows upon one ear of corn are not likely to agree long," and "Sigh no more."

NELLIE BACHE.—No, dear, I never had the pleasure of writing to "The Little Corporal."

OWEGO.—The "Arithmorem" was pretty thoroughly explained in the February number, 1872.

Thanks for letters, puzzles, etc., to C. F. J., Amanda Velsor, A Beginner, O. A. Gage, Nellie Bache, Owego, Ned W. W., and S. L. D.

The Old Nurse's Visit.

Some of the pictures that we gave in the Boys and Girls' Columns are intended to instruct, others are solely to amuse, and others still are what we call "art pictures,"

that is, pictures that are valuable for the excellence of their design and the skill of the artist. The picture of "The Old Nurse's Visit" is an art picture, and an excellent one. The original, an oil painting, attracted much attention at one of the Academy exhibitions, and represents what actually happened to the artist. Those who live in the Northern States have but little idea of the old nurse of the Southern States and her relations to the family. Almost every Southern home numbers among its inmates a black "mammy," trusted and esteemed by the older members of the family, and tyrannized over and coaxed in turn by the children. She idolizes her young charge, and no matter how much she may threaten and scold it herself, permits no one else to do so, and is extremely fertile in excuses for all its misdemeanors. Even when, as in the picture, the youngster has grown to manhood, he is as much her pet and her "chile" as in his infant days. She seems to regard him as belonging to her, and always takes the liveliest interest in his affairs. You can almost hear mammy, as she seats herself on the edge of the chair, as near as possible to the easel, in order to get a good view of the picture, and at the same time to see how it is done, "Well, honey, I nebber spected to a'seed nuffin like dis. Them trees is the very moral of them as growed on ole marse's place where you chillers played in the summer. Jest to think that de chile what I nussed is growed up to be such a painter! But laws, chile, I might a'knowned you'd a been sunthin grand! You allays was spy about making pikturs, and many a thing has you drawed on your ole mammy's clean whitewashed walls. Well, honey, you is growed up now sho' 'nuff, and de ole woman can't 'spect to see you much, but bless your soul, honey, your ole mammy jest feels de same

as if you was de little baby what she done toted in her arms long ago." And with a few more admiring looks at "her boy" and the wonderful picture he is painting, she leaves, and "The Old Nurse's Visit" is over.

A Boy Who Turned Out Well.

Not long ago a very rich man died in Germany, of whom it is said that his hat was the beginning of his fortune. He served an apprenticeship to a wood-turner. In Germany, after a young man is through his apprenticeship, he must travel for a year before he begins to work for himself. In the course of his *Wanderjahr*, or traveling year, young Muhl—for that was his name—called at a great machine-shop for work. The ragged and barefoot boy, with his knapsack on his back, did not look very promising, and he was told to go about his business. As he was going, the master-machinist called after him, "I say, man, what kind of a hat is that you have on?" "A wooden one, sir." "A wooden one! And where did you get it?" "I made it, sir." "How?" "With my lathe. I had a long way to go, and needed a hat to keep off the rain, and as I had no money to buy one, I made this out of wood." "But this is oval, and an oval form can not be made with a lathe." "That is true, sir, but nevertheless I did it. I took my central point, and worked away until I made my hat." The keen-sighted turner at once engaged him, and found him to be a mechanical genius as well as a good workman. He became a partner, and afterwards sole proprietor, and at length died the richest man of the neighborhood.

Not Injured by the Fire.

The Smith American Organ Co.,

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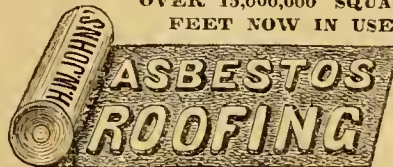
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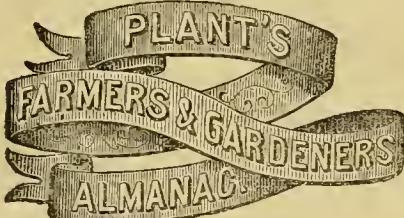
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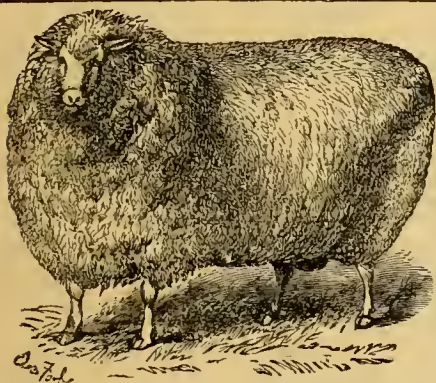
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To Every Subscriber to the *American Agriculturist* for 1873.

A Splendid Ornament for every Home.

The above fine gift is completed, and is being supplied as fast as they can be worked (about 5,000 a week), to subscribers in the order the names have been received for 1873. It is a beautiful ornament that will *greatly please everybody*. It is printed in 16 colors, which give the exact shading of the original painting, so perfectly that it is just as good for all practical purposes, and few persons can tell the copy from the original. The last printing gives a canvas impression so perfectly that the Chromo has all the appearance of an oil painting on canvas.

The cost of putting this on 16 stones has been large, but this being done, by printing 200,000 copies, the Publishers are able to present a copy to every subscriber for 1873. It is a perfect Gem, 11 by 13 inches inside the frame.

The Picture will be given to every subscriber for 1873 (new or old), whether coming singly at \$1.50 each, or in Clubs of Four for \$5, or Clubs of Ten at \$1.20 each, or in Clubs of Twenty or more at \$1 each. Subscribers in Premium Clubs will also be entitled to it. Any and every subscriber for all of 1873, whenever received, will be entitled to this picture, on remitting the 25 cents to pay for mounting, packing, and postage. The picture will be delivered at the Office, unmounted, free of charge, or if mounted, for 15 cents extra. If to go by mail, unmounted, 10 cents must be sent to cover cost of packing and postage.

It will be mounted on heavy binder's-board, and Varnished, ready for use, even without any frame, or for putting into a frame, for 15 cents extra—that is, for 25 cents it will be Mounted, Varnished, Packed, and sent Post-paid to subscribers for 1873 only.

N. B.—The *American Agriculturist* Chromo will be delivered:

At the Office, **Unmounted**, Free.

“ “ “ **Mounted**, 15 cents extra.

Sent by Mail, **Unmounted**, 10 cents extra.

“ “ “ **Mounted**, 25 cents extra.

We advise all to have them mounted *before leaving the office*, as in the large quantities we put up, we are able to mount them for a quarter of the cost of doing it singly, and better than it can usually be done elsewhere.

A Beautiful CHROMO,

[Size 14 × 20, in 18 Colors.]

“The Strawberry Girl,”

For Every Subscriber

TO

HEARTH and HOME

FOR 1873.

The Publishers have secured a *very large and most beautiful* PAINTING, and they have had perfect copies prepared from it, printed 18 times, in colors, to produce the beautiful coloring and shading of the original. A copy is now within *easy reach* of every Home in America.

The Journal itself will be a *rich treasure* in every Household. A magnificent New American Story by Edward Eggleston has already commenced; the general editorial care will remain as hitherto; and other practical, skillful, instructive, and pleasing writers will constantly aid in providing in **HEARTH AND HOME** a feast of good things which will make it a *most welcome visitor* to every Hearthstone and in every Home.

With all these attractions, and other improvements contemplated, the price of **HEARTH AND HOME** will continue at the low rate of only \$3 a year, or \$4 for **HEARTH AND HOME** and the *American Agriculturist*. (With the *Agriculturist* there will also be presented a *most beautiful Chromo* of an original picture, painted expressly for this purpose, entitled “Mischief Brewing,” by B. F. Reinhart. Sent, mounted, for only 25 cents extra.)

The **HEARTH AND HOME** Chromos will be delivered in the order in which the names have been received. No charge for the Chromo when taken at the office, unmounted. If to be sent prepaid, unmounted, 20 cents must be sent for prepayment and packing.

It will be mounted and varnished, ready for putting into a frame, for 30 cents extra—that is, for 50 cents it will be Mounted, Varnished, Packed, and sent Prepaid to subscribers (to HEARTH AND HOME for 1873 only).—That is, the **HEARTH AND HOME** Chromo will be delivered

At the Office, **Unmounted**, Free.

“ “ **Mounted**, 30 cents Extra.

If sent prepaid, **Unmounted**, 20 cents Extra.

“ “ **Mounted**, 50 cents Extra.

We advise all to have them mounted *before leaving the office*, as in large quantities we are able to have them mounted for a quarter of the cost of doing it singly, and better than it can usually be done elsewhere.



A large, beautiful, highly illustrated, and very valuable Journal—full of instructive and interesting reading matter, just suited to the wants of every home.

TERMS, ALWAYS IN ADVANCE:

One Copy One Year, - - - \$3.00.

Four Copies, One Year, - - - 2.75 each.

Ten or more Copies, - - - 2.50 each.

20 cents a year extra when sent to British America.

Subscribe Now.

The earlier subscription money is sent in, the sooner Chromos will be received, as they will be delivered in the order of receipt of names.

The subscription price of the *American Agriculturist* which is well known as one of the oldest and best magazines in the world, for the Farm, Garden, and Household, is \$1.50 a year. One copy each of **Hearth and Home** Weekly, and *American Agriculturist* Monthly, will be sent one year for \$4.—33 cents additional when the papers are to go to British America.

ORANGE JUDD & CO., PUBLISHERS,
245 BROADWAY, NEW YORK.

AMERICAN AGRICULTURIST.

ORANGE JUDG & Co., Publishers, 245 Broadway, N. Y. City.

ANNUAL SUBSCRIPTION TERMS (always in advance): \$1.50 each for less than four copies; Four to nine copies, \$1.35 each; Ten to nineteen copies, \$1.20 each; Twenty copies and upward, \$1 each. Papers are addressed to each name. *Either English or German Edition, at these prices.*

HEARTH AND HOME: \$3 a year for less than four. Four to nine copies, \$2.75 each; 10 or more copies, \$2.50 each.

Hearth and Home (weekly) with **American Agriculturist** sent to one address for \$4 a year.

NOW

IS THE TIME

TO MAKE

MONEY

FOR

**Farmers, Postmasters,
Gardeners, Merchants,
Nurserymen, Mechanics,
Physicians, Lawyers,
Ministers, Students,
Teachers, Clerks,
Ladies, Conductors,
Children, For ALL.**

Any one can, this month especially, with very little time and trouble, collect a small or large club of subscribers, for either *American Agriculturist*, or *Hearth and Home*, or **both**, and receive therefor one of the very excellent articles in the Premium List given in the adjoining Table. (Descriptive List sent free.) These articles are **fully worth** the money value set against each, which is the regular price. Everything in the list is **new, useful, and first-rate.**

They are **all just as good as money.** The assortment is so large, that every one will find something needed. They will **Sell** readily at their full value, and thus yield one a large **cash income.**

Over **14,000 persons** have secured one or more of them, and they have almost universally given *great satisfaction* to those receiving them.

In making up premium lists, you can promise *every subscriber* a **Beautiful Picture, worth many times the subscription price.** (See page 32.)

Any person who chooses may collect a small or large list of subscribers and receive the premium. It is only necessary to show copies of the papers, explain their

value, promise the **Chromos**, and collect and forward names.

It has been done largely at Stores, Shops, Post-offices, etc., and by private individuals. By **Co-operation**, Ministers, Teachers, Churches, Sunday and week-day Scholars, have obtained Melodeons, Libraries, Dictionaries, etc., also Sewing Machines, etc., for poor widows and others. Many Professional men have made up good premium lists at their offices. **Clerks** in Stores and Post-offices have materially increased their salaries thus, while individuals in all classes have secured good things for themselves or for presents to others, *all without the use of working hours, and at no money cost.*

The *American Agriculturist* is everywhere known and approved. **HEARTH and HOME** is now without a superior in the world as a splendidly illustrated Weekly Newspaper, for real value, cheapness, and adaptability to every home in America. The papers are *entirely different*. Taken together, they supply over **\$25,000** worth of fine engravings, and more good reading than can be found in *fifty* books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of one and partly of the other, as noted over the Table. We call **especial attention** to the last column of figures, showing the small number of names required where *both* papers are taken, at the reduced price of \$4 a year.

You, Reader, can get a Premium. TRY IT.

Explanatory Notes.

N. B.

Read and carefully

Note the following items:

(a) All subscribers sent by one person count, though from one or a dozen different Post-offices. But... (b) Tell us with each name or list of names sent, that it is for a premium.... (c) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from one to six months, to fill up your list.... (d) Send the exact money with each list of names, so that there may be no confusion of money accounts.... (e) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers.... (f) Specimen Numbers, Cards and Circulars will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly.... (g) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk; otherwise it is not.

[In the following table is given the price of each article, and the number of subscribers required to get it free, at the regular rates, \$1.50 a year for *American Agriculturist*, and \$3.00 a year for *Hearth and Home*; also at the club rates of \$1 and \$2.50; also at the rates of \$4 a year for both papers together.] **Descriptions of Premiums will be sent free to applicants.**

N. B.—In all Premium Clubs for either paper, **TWO** copies of *American Agriculturist* (English or German) at \$1.50 each, and **ONE** copy of *Hearth and Home* at \$3.00, will count exactly the same. So also **two** copies of *American Agriculturist* at \$1 each, and **one** copy of *Hearth and Home* at \$2.50, will count exactly the same. In this way Premium Clubs can be made up from the 2d and 4th columns, or from the 3d and 5th, or wholly from the 6th column.

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1873.		American Agricultur- ist only.		Hearth and Home only.		Both Papers together.			
Open to all—No Competition.		Price of Premiums.		Number of Sub- scribers re- quired at or at \$1.50 \$1.		Number of Sub- scribers re- quired at or at \$3.00 \$2.50		Number of Sub- scribers re- quired at \$4.00	
No.	Names of Premium Articles.								
1	Knives and Forks (Patterson Bros.)	\$35 00	22	75	11	58	...	13	...
2	Knives and Forks (do. do.)	\$30 00	30	102	15	51	...	17	...
3	Knives and Forks (do. do.)	\$25 00	40	140	8	20	...	8	...
4	French Cook's Knife, Fork, and Steel	\$1 25	10	34	6	17	...	7	...
5	Pocket Knife (Meriden Cutlery Co.)	\$1 25	10	34	6	17	...	8	...
6	Pocket Knife (do. do.)	...	6	7	3	...	...	3	...
7	Pocket Knife (do. do.)	...	6	7	3	...	...	4	...
8	Ladies' Pocket Knife (do. do.)	...	6	7	3	...	...	11	...
9	Mullum Paragon Knife (Miller Bros.)	\$3 50	6	22	4	11	...	6	...
10	Cake Basket (Luxur Hart Man'y Co.)	\$12 00	8	30	5	15	...	4	...
11	Revolving Butter Cooler (do. do.)	...	19	65	10	33	...	11	...
12	Card Receiver (do. do.)	...	16	52	8	23	...	9	...
13	Nut-picks and Crackers (do. do.)	\$12 00	16	49	8	23	...	9	...
14	Half-Dozen Napkin Rings (do. do.)	\$3 00	19	65	10	33	...	11	...
15	One Dozen Teaspoons (do. do.)	\$6 00	15	45	8	23	...	9	...
16	One Dozen Tablespoons (do. do.)	\$12 00	10	35	10	33	...	11	...
17	One Dozen Table Forks (do. do.)	\$12 00	10	35	10	33	...	11	...
18	Child's Cup (do. do.)	...	7	65	10	33	...	11	...
19	Gold Pen, Sil. Case (George F. Hawker)	\$3 25	6	20	4	14	...	5	...
20	Gold Pen and Silver Case (do. do.)	\$5 00	12	37	7	19	...	6	...
21	Gold Pen, Handle gold-tipped (do. do.)	\$6 00	15	45	8	23	...	9	...
22	Ladies' Gold Pen and Rubber Case (do. do.)	\$6 00	15	45	8	23	...	9	...
23	Paragon Fat. Revolving Pencil (do. do.)	\$1 50	4	15	2	...	...	3	...
24	Cake Basket, Revolving Pencil (do. do.)	\$3 00	8	30	5	15	...	6	...
25	Paragon's Indelible Ink (do. do.)	...	3	...	2	...	...	2	...
26	Moore's Floral Set (Moore Man'y Co.)	\$1 00	3	...	2	...	...	2	...
27	Steam Engine (do. do.)	...	3	...	2	...	...	2	...
28	Garden Seeds & Flower Bulbs (selection)	\$2 00	6	...	4	11	...	4	...
29	Sewing Machine (Grover & Baker)	\$55 00	60	240	30	120	...	33	...
30	Sewing Machine (Florence)	\$35 00	74	295	37	145	...	45	...
31	Needle Machine (Walter & Gibbs)	\$12 00	60	240	30	120	...	33	...
32	Beckwith Sewing Machine, Improved	\$22 00	16	52	8	23	...	9	...
33	Bickford Family Knitting Machine	...	20	80	20	67	...	10	...
34	Washing Machine (Doty's)	\$15 00	22	75	11	33	...	13	...
35	Clothes Wringer (Best Combined)	\$3 00	17	151	9	29	...	10	...
36	Wolcott & Co. (G. A. Prince & Co.)	\$3 00	18	205	30	143	...	43	...
37	Wolcott & Co. (do. do.)	\$12 00	158	440	69	290	...	76	...
38	Piano, Splendid 7-Oct. (Steinway & Sons)	\$350 00	160	620	313	515	...	332	...
39	Silver Watch (American Watch Co.)	\$40 00	50	165	85	135	...	61	...
40	Ladies' Fine Gold Watch (do. do.)	\$100 00	110	250	155	175	...	61	...
41	Breech-loading Pocket Rifle	\$16 00	24	80	12	40	...	14	...
42	Double-bbl. Gun (Cooper, Harris & B.)	\$50 00	46	150	25	75	...	26	...
43	Prize Patent's Astral Oil (Can. 5 Gal.)	\$2 75	9	32	6	16	...	7	...
44	Hand Cultivator & Water (Comstock)	...	17	54	9	29	...	13	...
45	American Submerged Pump	\$15 00	22	75	11	33	...	13	...
46	Family Seates (Fairbanks & Co.)	\$14 00	21	70	11	35	...	13	...
47	Building Blocks (Crandall)	\$2 00	5	20	3	10	...	4	...
48	"Boy's Own Boat" (works by Steam)	\$2 50	6	22	4	11	...	4	...
49	Worcester's Great Illustrated Dictionary	\$10 00	18	58	9	29	...	10	...
50	Any back Volume Agriculturist	\$2 50	...	...	...	...	...	2	...
51	Any Two Back Volumes do.	\$3 50	...	...	...	...	...	4	...
52	Any Three do. do. do.	\$5 25	...	...	...	...	...	6	...
53	Any Four do. do. do.	\$7 00	...	...	...	...	...	8	...
54	Any Five do. do. do.	\$8 75	17	54	9	27	...	10	...
55	Any Six do. do. do.	\$10 50	19	61	10	32	...	11	...
56	Any Seven do. do. do.	\$12 25	21	63	11	24	...	13	...
57	Any Eight do. do. do.	\$14 00	23	74	12	37	...	14	...
(Each add'l Vol. at same rate.)									
58	Sixteen Vols. XVI to XXXI.	\$28 00	38	128	19	63	...	21	...
59	Any Back Vol. Agriculturist	\$2 50	...	...	...	...	...	3	...
60	Any Two Back Volumes do.	\$3 50	...	...	...	...	...	6	...
61	Any Three do. do. do.	\$5 25	16	48	8	24	...	9	...
62	Any Four do. do. do.	\$7 00	18	60	9	30	...	10	...
63	Any Five do. do. do.	\$8 75	21	71	11	36	...	14	...
64	Any Six do. do. do.	\$10 50	24	82	12	41	...	16	...
65	Any Seven do. do. do.	\$12 25	27	92	14	46	...	16	...
66	Any Eight do. do. do.	\$14 00	30	102	15	51	...	17	...
67	Any Nine do. do. do.	\$16 00	33	110	17	55	...	18	...
(Each add'l Volume at same rate.)									
68	Sixteen Vols. XVI to XXXI.	\$50 00	54	160	27	80	...	30	...
69	Farmer's Boy's Library	\$5 00	12	33	6	16	...	9	...
70	Farmer's Boy's Library	\$5 25	15	38	7	26	...	9	...
71	Farmer's Boy's Library	\$11 25	20	55	10	32	...	11	...
72	Farmer's Boy's Library	\$15 75	25	65	13	42	...	15	...
73	Farmer's Boy's Library	\$20 00	30	102	15	51	...	17	...
74	Any Back Vol. Hearth & Home (Bound)	\$4 00	9	32	5	16	...	6	...
75	Any Back Vol. do. do.	\$5 00	16	50	8	25	...	9	...
(Each additional Volume at same rate.)									
76	\$10 Library (Your Choice)	\$10 00	18	58	9	29	...	10	...
77	\$15 Library do.	\$15 00	24	85	12	43	...	14	...
78	\$20 Library do.	\$20 00	31	106	16	53	...	18	...
79	\$25 Library do.	\$25 00	38	123	19	63	...	21	...
80	\$30 Library do.	\$30 00	44	144	22	72	...	25	...
81	\$35 Library do.	\$35 00	50	162	25	81	...	28	...
82	\$40 Library do.	\$40 00	56	177	28	89	...	31	...
83	\$45 Library do.	\$45 00	62	192	31	96	...	34	...
84	\$50 Library do.	\$50 00	68	207	34	104	...	38	...
85	\$55 Library do.	\$55 00	74	220	40	119	...	41	...
86	\$60 Library do.	\$60 00	80	232	50	141	...	55	...
87	\$65 Library do.	\$65 00	100	270	63	180	...	70	...
88	\$100 Library do.	100 00	125	360	81	243	...	90	...
(A Choice of Good Books. (See Description.)									
89	Breech-loading Shot-gun (Remington's)	\$25 00	33	130	20	67	...	21	...
90	Single-barrel Shot-gun, (do.)	\$8 00	16	52	8	28	...	9	...

Full Descriptions

of our Premiums are given in our last October number, which will be mailed free to applicants. We have room in this paper only for the following **Descriptive Notes**:

Nos. 1, 2, 3.—American Table Cutlery.—We are glad to be able to offer really good articles of American manufacture, such as are competing successfully with the best foreign make. **Messrs. Patterson Bros., 27 Park Row**, who supply us with these articles, are also importers of English goods. They recommend these Knives, manufactured by the **Meriden Cutlery Co.**, as equal to any Cutlery in the market, and their recommendation is a guarantee, wherever they are known. We offer two kinds of Knives, and three sizes of each kind. No. 1 have Rubber Handles, which are actually boiling-water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the best steel, and warranted. Dessert size, with Forks, sold at \$15.... For 24 subscribers at \$1.50, or 80 at \$1, we will give either the medium size or the table size, sold at \$16.00. No. 2 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at \$20.00.... For 33 subscribers, at \$1.50, or 110 at \$1, we will send the medium size, sold at \$22.00.... For 35 at \$1.50, or 116 at \$1, we will send the Table size, sold at \$23.00. The Forks, which accompany these Premiums, Nos. 1 and 2, are made of genuine Albata, and warranted double-plated with coin-silver. These Forks are furnished to us by Messrs. Patterson Bros.... The Carving-Knife and Fork are made by **The Meriden Cutlery Co.**, with the best Ivory, balanced Handles.

Nos. 5, 6, 7, 8.—Pocket Knives.—**HERE'S FOR THE BOYS AND GIRLS!**—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are furnished by the **Meriden Cutlery Co., 49 Chambers st., New York**, whose work is equal to any done in this country or Europe. No. 5 is a neat, substantial Knife, with three blades and buck-horn handle. No. 6 is a still finer article, with four blades and pearl handle. No. 7 is an elegant Knife, with five blades and shell handle. No. 8 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 10.—Cake Basket.—A new pattern, oval-shaped, or square, nicely chased—a very taking, useful, and beautiful table ornament. This, with other articles that follow, is made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City**, and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully justified in his reputation. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-looking plated ware for less than half the money.

No. 11.—Revolving Butter-Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 10.

No. 12.—Card Receiver.—This is a beautiful ornament, as well as a useful article. It is nicely chased and gilt-lined, and, like the three preceding, is from the **Lucius Hart Manufacturing Co.**

Nos. 19, 20, 21.—Gold Pens: with ever-pointed Pencils, in extension, coin-silver cases.—Premium No. 19 contains the best No. 4 Gold Pen; and No. 20 the best No. 6 Gold Pen, which is the same style, but larger. No. 21 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather case by mail, post-paid. These pens are made by **Geo. F. Hawkes, No. 66 Nassau St.**, and have obtained an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

Nos. 23, 24.—Paragon Patent Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the head. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at \$1.50 each, and one of heavier and firmer plate, at \$3.00. Same maker as No. 19.

No. 25.—Payson's Indelible Ink, and Briggs's Marking-Pen Combination.—Payson's Indelible Ink is too well known to need further commendation. It is almost indispensable in the family. Briggs's Marking-Pen has been before the public for fifteen years, and is justly celebrated for all kinds of marking, and particularly for writing upon coarse fabrics. The Pen and ink are put up in a neat case, being thus portable, always ready for use, and protected from loss or injury by evaporation or breakage.

No. 27.—Steam-Engine.—This is a veritable steam-engine; one that will GO; and a capital, intensely interesting, and instructive article for boys, and grown-up people too. Our eleven-year-old boy ran his engine an average of an hour or more a day for six months; he exhibited it in motion to many of his playmates, hitched on various toy machinery, and it appeared to go just as well as when first started.

No. 34.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" use it and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York**, or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 35.—Universal Clothes Wringing.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in every family. The wringing of clothes by hand is hard upon the hands, arms, and chest, and the twisting stretches and breaks the fibers with lever power. With the Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co., Middlefield, Ct.** **R. C. Browning, 32 Cortlandt st., N. Y.**

No. 40.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 39 above) includes these beautiful gold watches. They are full-jeweled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time-keeper. Upon the movement of each Premium Watch will be engraved "**AM. AGRICULTURIST. MADE BY THE AM. WATCH CO., WALTHAM, MASS.**"

No. 47.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequaled. The Blocks are put up in neat boxes, accompanied by a large illustrated sheet giving various designs of buildings, etc. This is one of the most successful toys ever invented.

No. 48.—B. O. B.—The "Boy's Own Boat"—a Real Toy Steamboat, that will propel itself on the water for over half an hour. This beautiful toy is durably made, elegantly finished, and is just the thing for bath-tubs in winter and ponds and streams in summer. The boat is 18 inches long, and fitted with Ryder's Dollar Steam-Engine and Dodge's Propeller. The engine has a perfect-working safety-valve, whereby any excess of steam passes off. It is one of the most pleasing and instructive toys ever produced. Printed directions for management accompany each boat.

Nos. 76 to 87.—Good Libraries.—In these premiums, we offer a choice of Books for the **Farm, Garden, and Household.** The person entitled to any one of the premiums 76 to 87 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded, Post or Express paid. Let the farmers of a neighborhood unite their efforts, and through these premiums get an agricultural library for general use. See Table List of Books in advertising columns.

No. 88.—General Book Premium.—Any one sending 25 or more names, may select books from our list to the amount of 10 cents for each subscriber sent at \$1; or 30 cents for each name sent at \$1.20; or 60 cents for each name at \$1.50. This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through, by us. See List as in No. 76.

No. 89.—Remington's Breech-loading, Single-Barrel Shot-Gun.—This gun has the best quality barrel, 32-in. gauge, No. 16, weight 6½ lbs., using "Draper's" patent brass shells, which can

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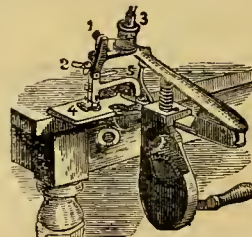
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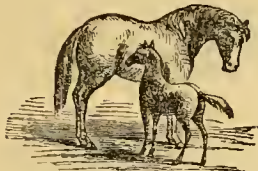
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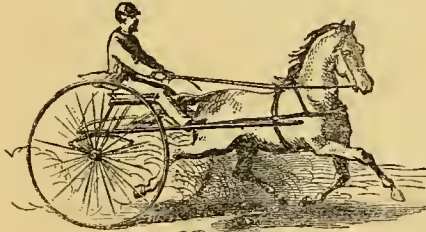


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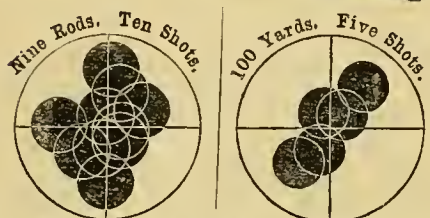
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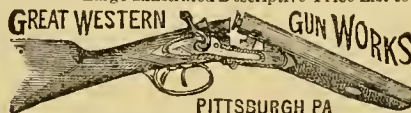
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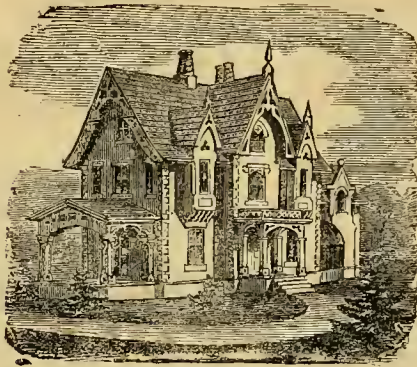
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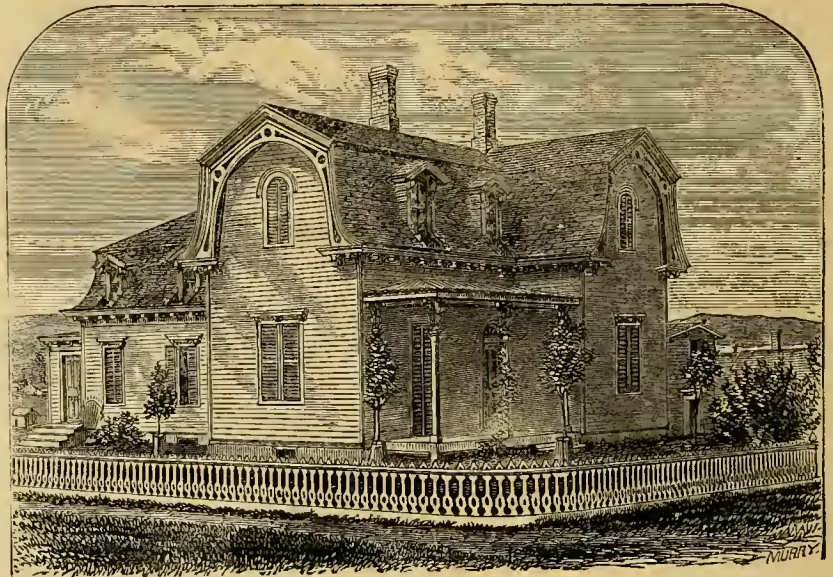
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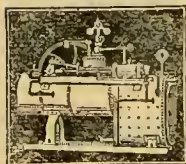
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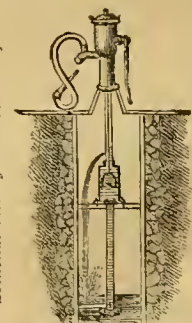
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Calendar for February.

Day of Month.	Day of Week.	Boston, N. Eng., land, N. York State, Michi- gan, Wiscon- sin, Iowa, and Oregon.			N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken- tucky, Missou- ri, and Cal- ifornia.		
		Sun rises.	Sun sets.	H. M.	Sun rises.	Sun sets.	H. M.	Sun rises.	Sun sets.	H. M.
1	S	7 14 15	11 10 17	7 10 15	7 10 15	11 10 17	7 10 15	7 10 15	11 10 17	7 10 15
2	M	7 15 16	11 11 18	7 11 16	7 11 16	11 11 18	7 11 16	7 11 16	11 11 18	7 11 16
3	T	7 16 17	11 12 19	7 12 17	7 12 17	11 12 19	7 12 17	7 12 17	11 12 19	7 12 17
4	W	7 17 18	11 13 20	7 13 18	7 13 18	11 13 20	7 13 18	7 13 18	11 13 20	7 13 18
5	T	7 18 19	11 14 21	7 14 19	7 14 19	11 14 21	7 14 19	7 14 19	11 14 21	7 14 19
6	F	7 19 20	11 15 22	7 15 20	7 15 20	11 15 22	7 15 20	7 15 20	11 15 22	7 15 20
7	S	7 20 21	11 16 23	7 16 21	7 16 21	11 16 23	7 16 21	7 16 21	11 16 23	7 16 21
8	M	7 21 22	11 17 24	7 17 22	7 17 22	11 17 24	7 17 22	7 17 22	11 17 24	7 17 22
9	T	7 22 23	11 18 25	7 18 23	7 18 23	11 18 25	7 18 23	7 18 23	11 18 25	7 18 23
10	W	7 23 24	11 19 26	7 19 24	7 19 24	11 19 26	7 19 24	7 19 24	11 19 26	7 19 24
11	T	7 24 25	11 20 27	7 20 25	7 20 25	11 20 27	7 20 25	7 20 25	11 20 27	7 20 25
12	F	7 25 26	11 21 28	7 21 26	7 21 26	11 21 28	7 21 26	7 21 26	11 21 28	7 21 26
13	S	7 26 27	11 22 29	7 22 27	7 22 27	11 22 29	7 22 27	7 22 27	11 22 29	7 22 27
14	M	7 27 28	11 23 30	7 23 28	7 23 28	11 23 30	7 23 28	7 23 28	11 23 30	7 23 28
15	T	7 28 29	11 24 31	7 24 29	7 24 29	11 24 31	7 24 29	7 24 29	11 24 31	7 24 29
16	W	7 29 30	11 25 32	7 25 30	7 25 30	11 25 32	7 25 30	7 25 30	11 25 32	7 25 30
17	T	7 30 31	11 26 33	7 26 31	7 26 31	11 26 33	7 26 31	7 26 31	11 26 33	7 26 31
18	F	7 31 32	11 27 34	7 27 32	7 27 32	11 27 34	7 27 32	7 27 32	11 27 34	7 27 32
19	S	7 32 33	11 28 35	7 28 33	7 28 33	11 28 35	7 28 33	7 28 33	11 28 35	7 28 33
20	M	7 33 34	11 29 36	7 29 34	7 29 34	11 29 36	7 29 34	7 29 34	11 29 36	7 29 34
21	T	7 34 35	11 30 37	7 30 35	7 30 35	11 30 37	7 30 35	7 30 35	11 30 37	7 30 35
22	W	7 35 36	11 31 38	7 31 36	7 31 36	11 31 38	7 31 36	7 31 36	11 31 38	7 31 36
23	T	7 36 37	11 32 39	7 32 37	7 32 37	11 32 39	7 32 37	7 32 37	11 32 39	7 32 37
24	F	7 37 38	11 33 40	7 33 38	7 33 38	11 33 40	7 33 38	7 33 38	11 33 40	7 33 38
25	S	7 38 39	11 34 41	7 34 39	7 34 39	11 34 41	7 34 39	7 34 39	11 34 41	7 34 39
26	M	7 39 40	11 35 42	7 35 40	7 35 40	11 35 42	7 35 40	7 35 40	11 35 42	7 35 40
27	T	7 40 41	11 36 43	7 36 41	7 36 41	11 36 43	7 36 41	7 36 41	11 36 43	7 36 41
28	W	7 41 42	11 37 44	7 37 42	7 37 42	11 37 44	7 37 42	7 37 42	11 37 44	7 37 42
29	T	7 42 43	11 38 45	7 38 43	7 38 43	11 38 45	7 38 43	7 38 43	11 38 45	7 38 43
30	F	7 43 44	11 39 46	7 39 44	7 39 44	11 39 46	7 39 44	7 39 44	11 39 46	7 39 44
31	S	7 44 45	11 40 47	7 40 45	7 40 45	11 40 47	7 40 45	7 40 45	11 40 47	7 40 45

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON.	CHICAGO.
1st Quart.	4 5 22 m.	5 10 m.	4 58 m.	4 46 m.	4 16 m.
Full M'n	12 6 49 m.	6 32 m.	6 25 m.	6 13 m.	5 43 m.
3d Quart.	20 6 59 m.	8 27 m.	6 15 m.	6 3 m.	5 33 m.
New M'n	26 10 38 ev.	10 26 ev.	10 13 ev.	10 2 ev.	9 32 ev.

AMERICAN AGRICULTURIST.

NEW YORK, FEBRUARY, 1873.

This is the last month of winter. Spring will soon be here, and it is well to think about and prepare for its labors. We do not mean by this that our winter's work will soon be ended. We, at the North at least, shall be obliged to feed our stock for at least three months longer. There will also be many days and weeks in which nothing can be done except what we call winter's work. It is nevertheless true that spring is approaching. The fact is that the seasons run into or overlap each other, and if we are wise we shall be fully prepared at any time to do spring work in winter and winter work in spring. We know not when one ends and the other commences. It is this uncertainty in regard to the season that forms one of the marked peculiarities of farm work. Some people tell us that farm life is made up of a dull round of monotonous duties. They know nothing about it. Our labors are not half so monotonous as those of the factory, the shop, the store, or the office. There are certain things that must be done every day, but is not this true of all occupations? The philosopher who figured up how many times he would have to dress and undress himself if he lived to be three-score years and ten, and was so overwhelmed at the thought of having to do such an enormous task that he committed suicide, was a philosopher only in name. We have heard a farmer complain of how many times he had to carry a pailful of feed to his pig. He said he did not think it paid. We have not much sympathy with the men who are forever asking, "Does farming pay?" or "Does life pay?" Such men will find little pleasure or profit in any occupation. Farm life is dull only to the dullard. The fault is in the man, not in the work. We find that the duties and labors of modern agriculture require the exercise of all the talents that we possess—and more, too. Lonely farm life may be—though we do not find it so—dull and monotonous it never need be. If you find it so, wake up, stir yourself, think, study, work. Whatever your hands find to do, do it with your might. We never knew a day on a farm when there was not something to do. We have rarely known a night set in when there was not something left

undone that ought to be done. Again we say, Wake up, arouse your faculties, see how quick and how well you can do your this or that particular work, and with the least expenditure of force. Then, when it is done, go at something else. Try and get the work done—everything—and then, when you can not think of another single thing that ought to be done, take a good rest, enjoy yourself, visit your friends and neighbors, and have a good time generally. One who does thus will never find farm life dull.

If you find that you have more energy than your present farming operations call into exercise, enlarge them. We do not mean by this, necessarily, that you had better get a larger farm. This may or may not be wise. But there are many other ways of increasing the demand on your time, thought, and energy, such as adopting a higher system of farming, raising thorough-bred stock to sell for breeding purposes; or you may go more extensively into fruit culture, seed-growing, or market-gardening. In this country there is no lack of profitable work for any man capable of doing it.

Hints about Work.

We have said there is no lack of profitable work for any man capable of doing it. But there are different degrees of capacity. We have to compete with each other, and the man that can accomplish a given amount of work at the least cost makes the most money.

Farmers must Study Economy.—We do not mean by this that they must live cheaply. Farmers are not often extravagant in their style of dress and manner of living. It is the very best of economy to dress warm, and comfortable, and appropriately to the work. It is good economy to make the house as pleasant as possible. It is good economy to eat well, sleep well, and work hard.

Working Hard is not always working to the best advantage. A man may work very hard chopping wood with a dull axe, or pumping water with a pump that "sucks air," but he is not working with economy. A man gets pay, or ought to get it, not for "working," but for what he accomplishes. This is as true of the farmer as of his hired men, though we do not feel its force so fully in the one case as in the other. We do not like to pay a man for carrying one pail of water when he might just as well carry two, or for plowing or harrowing with one horse when he might just as well drive three. But farmers themselves often do things equally wasteful of time and labor. Do we never take a load to the city and come back empty, and then go empty to the city to bring back a load, and thus lose half our own time and that of the team, and pay double toll into the bargain?

True Scientific Farming consists largely of the exercise of common-sense. No amount of mere knowledge will enable us to dispense with system, order, judicious planning, and economical work.

Live-Stock.—Much of the success of a farmer depends on the proper and economical management of his live-stock. We should never forget that it is live stock. We can paint an implement and stow it away until required, but our animals must have food to eat every day. They must have food enough to keep them warm and sustain the vital functions. If you do not give them enough they must live on their own fat and flesh.

Turning Animals to a Straw-Stack, and letting them help themselves, seems an economical way of wintering stock, but it is fearfully extravagant. We do not mean merely that they waste the straw, but it is compelling them to eat their own bodies—it is feeding them on beef, mutton, butter, and fat! Can you afford to do so?

Horses.—With us, timothy hay sells for as much per ton as we can buy corn-meal for. In such circumstances, where a farmer has plenty of good bright oat or wheat straw, it is poor economy to feed timothy hay to farm horses. Cut up the straw into chaff. A bushel of it will weigh about 8 lbs. If the horses are not working, mix two quarts of corn-meal with a bushel of the chaff, and let them

have all that they will eat. If they leave any, remove it from the mangers and give it to the cows. If the horses are at moderate work, two or three days a week, mix three quarts of meal with the bushel of chaff, or four quarts if the horses are at moderate work nearly every day. If you have conveniences, it is a great advantage to wet the chaff with boiling water; cover with a blanket and let it stand for a few hours. Try this plan.

Cows.—We are feeding our own cows chaffed corn-stalks and straw, with a quart of corn-meal to a bushel of chaff. Those that are giving milk get in addition a pint of corn-meal and a quart of bran, stirred into a pailful of water, twice a day. Keep the stable clean, warm, and well ventilated. All cows are better for being carded—those that are stalled especially need it. If the cows leave any of the cut stalks and straw, remove them from the mangers and sprinkle a little salt water over them. The cows will then eat the most of them.

Young Stock should be fed liberally. They are growing, and can not be kept healthy unless they have enough nutriment to provide for their natural growth. A bushel of chaffed straw or stalks, a bushel of chaffed clover hay, half a peck of fine bran, and a quart of corn-meal, mixed together, forms a cheap and excellent food. Let them have all they will eat of it. If they leave any, give it to the older cattle.

Working Oxen should be fed somewhat in proportion to their work. If possible, never feed grain or meal alone. It should be mixed with cut feed. This is far more important with oxen and cows than with horses. The horse has but one stomach, and that a small one, while the ox has four, and can eat and digest a much more bulky and less nutritious food than the horse. Grain fed alone is very apt to pass into the intestines undigested. Corn fed in the ear is better for oxen than shelled corn.

Sheep.—Fattening sheep should be pushed forward rapidly. With us, the rule is, for three or four-year-old Merino wethers, one pound of corn each per day, and all the bright wheat-straw they will eat, until about the first of February. Then, either give a little clover hay in addition to the straw, or else increase the corn to 1½ pound per day, or, for the last few weeks, we have known 1½ pound fed without injury.

Merino Ewes that are not expected to lamb before April can be wintered well on good clover hay alone, but with us it is much cheaper to feed straw and half a pound of corn each per day.

Merino Lambs and Yearlings should be kept by themselves, and have better feed than the older store sheep—say half a pound of corn and one pound clover each per day, and all the straw they will eat. Old ewes that are not doing well, if you have no other place, may be put with the lambs where they will get better food.

Long-wooled Sheep, or mutton sheep of any breed, require somewhat different treatment than sheep kept almost entirely for wool alone. They mature earlier, grow much more rapidly, and the *young sheep* require, or at any rate will pay for better food than Merinos. A flock of well-bred long-wooled lambs might have one pound straw-chaff, one pound clover-chaff, one pound bran, and a pint of oats each per day. Five or six quarts of sliced roots might be given with advantage as a substitute for the bran. If you are fattening wether lambs, intending to sell them after shearing, a pint of corn might be given in place of or even in addition to the oats. If the lambs do not eat up all their food clean, remove it and give it to the store sheep.

Breeding Long-wooled Ewes should be kept in a good, thrifty condition. Avoid giving too much corn, on the one hand, or of having them get poor on the other. Clover hay and bran are better for them than corn, except in very cold weather.

The Main Points in managing a flock of well-bred long-wooled sheep in winter are to keep them dry and comfortable, to feed liberally, and let them have as much exercise as possible. Dry cold does not hurt them. Warm, damp, ill-ventilated quarters or exposure to severe rains are very injurious.

Early Lambs for the Butcher should be kept warm and dry, and pushed forward as rapidly as possible. Give them all the sliced roots, bran, and oats, or oil-cake, or corn-meal that they will eat, in a little trough separate from the ewes. Give the ewes plenty of bran, clover hay, and sliced roots, and keep them warm, dry, and comfortable. And do not forget that they need a constant supply of water. This is true of all animals, but it is more especially true of those that are giving milk.

Swine.—Let pigs of all ages have access to a mixture of ashes, salt, and sulphur. Keep the pens and troughs clean. Let them have a dry, warm, well-ventilated place to sleep in. Do not put too many in a pen. Keep the younger and weaker separate from the older and stronger. Feed according to what the pigs are designed for.

Fattening Pigs should be fed all the corn or other grain they will eat.

Breeding Sows should be kept in a thrifty condition. Vigorous health is the main point. Aim to let them have all the food they can eat, but let it not be too rich, and make them work for it; i. e., make them take as much exercise as possible.

Last Spring Pigs designed to be summered over and fattened next fall, should be kept growing rapidly. They make good scavengers, picking up much that would otherwise be wasted. As a rule, however, they are not fed as liberally as would be profitable. Well-wintered is half-summered.

Fall Pigs need the best of care and food. There is nothing better for them than cooked corn-meal mixed with skimmed milk. If they have a tendency to get too fat, substitute a portion of bran for corn-meal.

Be Forehanded with your Work.—This is always good advice, but it is particularly so now. Anything that can be done now to save labor in spring and summer should not be neglected.

Oil the Harness, and have it thoroughly overhauled and repaired when needed. Wash it clean with warm soft water and soap and brush before oiling. This is very important. Then oil it, and hang it up in a warm place to dry. But do not burn it.

The Wood-house should be filled with sawed and split wood, and if more than it will hold will be needed before this time next year, cut it, haul it, saw it, split it, and pile it up to dry under cover. You will never have a better time. In piling, be careful not to get it too compact. Leave plenty of space for the air to get through it.

There are many other things that can be done to facilitate work in the spring that will occur to any farmer who will take time to think over the matter. Write them down whenever they occur to you. And, above all, make up your mind to do them—and do them at once.

Work in the Horticultural Departments.

During the month of February everything should be put in order, and all plans completed ready for the opening of spring work. If the tools are not repaired and painted, the seeds and trees ordered, the rapid advance of spring work will crowd out these necessary operations, and the gardener will find himself behindhand. Calculations ought to be made long before they are to be put into execution, as a storm or some unforeseen accident may prevent the doing of some job, and thus cause loss in time and labor which could have been prevented if careful plans had been laid. The snow which has covered the ground during much of the winter will probably leave the garden in such a condition that it can be worked quite early. The snow has performed the part of a mulch, and the frost has not penetrated very deep, and the probability is that spring will open early. To succeed in gardening drive the work, and not allow it to lag, so that everything is done just too late.

Orchard and Nursery.

Insects.—As the sun's heat increases from week to week, and the ground thaws during the middle

of the day, the canker-worms will ascend the trees to deposit their eggs for the brood of caterpillars to be hatched next June. It is not too early now to take precautions to prevent their ascent. The numerous contrivances, patented and otherwise, all have some good quality to recommend them to the orchardist, but the simplest and cheapest is a band of tarred paper, or printer's ink applied as directed in an article on page 63. Tent-Caterpillars' eggs can be easily seen and removed now by a long-handled pruning-shears, and the eggs burnt. Their destruction is much easier now than when the eggs have hatched and the caterpillars built their nests later in the spring. Lately, we have received specimens of a small beetle, known as the Apple-twig Borer, from Kentucky. These insects, though very numerous west of the Alleghany Mountains, do but very little injury to large orchard trees. They are most injurious to nursery stock, the small branches of which they penetrate, causing the twigs to wither and the leaves to turn brown. The only remedy is to cut off all infested twigs, and burn them.

Injured Trees.—Trees from which branches have been broken off by storms or ice should have the wound cut smooth, and a coat of shellac varnish or melted grafting-wax applied to their surfaces, to prevent decay from moisture.

Varieties.—If new orchards are to be planted, the trees should be obtained as soon as possible. Due regard of course must be had in the selection of varieties, using only those which are known to be good and abundant bearers. Select also with reference to having a succession from earliest to the latest, if intended for family use.

Nursery Trees often arrive during cold weather, when they will be found frozen, or sometimes they have been subjected to drying winds, so that when they arrive at their destination they are shriveled, and at first sight apparently worthless. When frozen, put in a cool place, where they will thaw gradually. If shriveled by drying, most of them will recover if buried entirely in earth for a few days.

Manure.—Cart to the orchard and put in small heaps, when the weather is suitable. If there is snow on the ground, use a sled, as this will save much labor in loading, and, besides, avoid cutting up the ground in the orchard by cart-wheels.

Scraping the dead bark from orchard trees will add much to their good appearance, and induce a healthy growth the coming summer. A small triangular plate of steel attached to a handle two or three feet long is the best implement. Any village blacksmith can easily make one which will answer quite as well as those sold at the stores.

Cions must be cut before the sap starts, and preserved in sawdust or sand until needed for setting.

Pruning may be done when the trees are not frozen, though June is probably the best month in which to do it. If done now, it saves time, which is valuable during the summer months.

Fruit Garden.

Grape-Vines may be pruned when they are not frozen, and before the sap starts in the spring. Vines pruned in the fall should be gone over, and the extra buds left at that time removed.

Timber for trellises and grape-vines ought to be sawed and stored where the air can circulate freely around it, so that it may be properly seasoned, ready for use in the spring. Posts made of locust, chestnut, and red cedar are best for durability.

Strawberries may be planted as soon as the frost will permit.

Trees trained upon wires or trellises should be looked after occasionally, to see that the ties have not been broken by the weight of snow and ice.

Gates and fences should be kept in good repair, as stray cattle will often do much injury when the ground is soft, by tramping upon strawberry beds and breaking down trees, trellises, etc.

Blackberries and Raspberries.—Set as soon as the ground will admit of being worked, as the underground shoots which form the canes for next season are tender and liable to be injured if left until late.

Kitchen Garden.

The most that can be done in this department is to prepare everything which will be needed for use in the garden, and have it in readiness, so that it can be had at a moment's notice. Another thing to bear in mind is to have every tool in a proper condition for immediate use. Workmen can do a much larger amount of work with tools which are sharp or in perfect repair. At the South, a few of the hardy sorts of vegetables, such as onions, parsnips, etc., may be sown in open ground, but the tender sorts must not be planted until all danger from frosts has passed.

Cold-Frames.—As the weather grows milder, see that plenty of air is given the plants every pleasant day, and on warm days the sashes may be entirely removed during the middle of the day. Do not leave them open during the night, for fear of a sudden storm or change of weather.

Hot-Beds.—Prepare plenty of fresh horse-manure for use in hot-beds. These however will not be wanted until the first of next month in most of our Northern localities. A safe rule is to make the beds from four to six weeks before the ground is ready to work. A southern or south-eastern exposure ought to be selected, sheltered as much as possible on the north and north-west sides from the cold, bleak winds which are so common during early spring. A tight board fence is the best protection if there are no buildings to shelter the beds.

Manure.—Turn over occasionally, to prevent it from becoming overheated, and mix a little earth with it. Should it become too dry, sprinkle it with water. Save the horse-manure separate from the rest, to use in hot-beds.

Straw Mats and Shutters.—See that these are in good order, and ready for immediate use, as they will be needed during cold snaps.

Seed-Boxes.—Prepare seed-boxes for sowing small seeds. A number may be placed in a window, where they can be attended to easily. They are convenient to use in the hot-bed, as the small plants can readily be transplanted from them.

Soil.—See that there is plenty of soil provided for use in the hot-beds and seed-boxes.

Brush and Poles for peas and beans may be cut and prepared for use now. Sharpen the poles, and dip the ends which are to be put into the ground in petroleum or tar to preserve them. Bean-poles, when of cedar or walnut, treated in this way will last a long time. Pea-brush should be put in convenient-sized piles, and a weight put upon it to give a flat shape, so it will occupy little room.

Roots left in the ground during the winter may be dug when the ground thaws sufficiently to work.

Flower-Garden and Lawn.

Little can be done in this department until the weather has become settled. Plans for improving old and laying out new lawns and ornamental grounds can be made, and everything be put in readiness for commencing work as soon as spring opens. Order all trees and shrubs needed so that they may be set as soon as the weather will permit.

Cumms and other roots stored in the cellar will need looking after, and if any tendency towards decay is observed, remove all rotten parts, and store the sound roots in a drier place, where there is no danger of frost.

Seeds of choice annuals may be sown in window-boxes, and kept in a window where they can get plenty of air and sun. Select such varieties as are wanted for use during the spring and summer now, so that they may be at hand when needed.

Plants stored in the cellar will need looking after now, and plenty of air, given them, so that they will not start into growth too soon.

Wood-work of all kinds in use in and around the garden and lawn should receive a good coat of paint or petroleum, to prevent decay. Wooden appliances, with a little care in this particular, can be made to last much longer than when not so treated.

Greenhouse and Window Plants.

Attend to the proper ventilation of the greenhouse. Now that the weather is milder, the ventilators may be opened more.

Sprinkling.—Shower the plants in the greenhouse every few days, to prevent the dust from gathering upon the foliage. Before sprinkling, close the ventilators, so as to keep all the moisture in.

Bulbs which have done flowering may have their flower-stalks cut away, and when the leaves are dead they may be dried off, and afterwards turned out and stored in a dry place ready for planting in the open ground in the fall. Those which have not flowered may be brought out from time to time, so as to keep up a succession of flowers.

Camellias and Acacias may be brought into the warmer part of the greenhouse to flower, taking a little care to preserve a succession of flowers as long as possible. When sprinkling other plants, take care not to allow the water to fall upon the flowers, as it disfigures and spoils them.

Re-potting.—Many plants will need re-potting in fresh earth to keep them in good health. Sometimes the removal of a quantity of the surface soil and putting fresh in its place will answer in the case of large plants. A layer of manure upon the surface of the soil of a plant will cause renewed vigor of growth.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending January 14th, 1878, and for the corresponding month last year; also for the year ending December 31, 1872.

TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Peas.
28 d's last m'th.	2,353,000	2,353,000	1,280,000	44,000	551,000	821,000	25 d's last m'th.	374,000	2,891,000
25 d's last m'th.	2,353,000	2,353,000	1,280,000	44,000	551,000	821,000	22 d's last m'th.	374,000	2,891,000

SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
28 d's last m'th.	2,353,000	1,955,000	2,606,000	42,000	325,000	1,335,000
25 d's last m'th.	2,353,000	1,955,000	2,606,000	42,000	325,000	1,335,000

2.	Comparison with same period at this time last year.
RECEIPTS.	Flour. Wheat. Corn. Rye. Barley. Oats.
26 days 1878.	356,000 2,253,000 1,280,000 28,000 664,000 821,000
23 days 1872.	189,000 193,000 867,000 500 331,000 356,000

SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's 1878.	263,000	1,955,000	2,606,000	42,000	325,000	1,335,000
23 d's 1872.	172,000	1,115,000	1,797,000	102,000	138,500	1,009,000

1870.....	469,500	18,198,100	4,898,300	630,300	1,617,400	6,561,100
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5. *Receipts of Breadstuffs in New York in each of
the last five years:*

	<i>Flour.</i>	<i>Wheat.</i>	<i>Corn.</i>	<i>Rye.</i>	<i>Barley.</i>	<i>Oats.</i>
1872.....	3,099,771	16,229,418	25,292,156	497,563	5,117,351	12,486,818
1871.....	3,449,045	26,518,390	27,108,156	1,055,021	3,962,123	12,546,966
1870.....	4,143,903	21,683,742	31,434,478	550,160	6,030,718	16,232,606
1869.....	5,535,716	23,819,632	41,666,784	257,803	3,907,958	8,747,232
1868.....	2,860,726	12,988,147	19,055,615	773,351	2,853,043	10,221,590

6.	<i>Exports from New York, Jan. 1 to Dec. 31:</i>					
	<i>Flour.</i>	<i>Wheat.</i>	<i>Corn.</i>	<i>Rye.</i>	<i>Barley.</i>	<i>Oats.</i>
1872.....	1,179,050	13,144,936	27,861,000	668,547	22,636	21,480
1871.....	1,639,755	21,968,643	33,044,510	525,772	98,745	47,310
1870.....	1,950,224	38,416,085	48,779,422	42,451	28,985	—

1869.	1,82,211	13,210,586	1,637,586	142,542	—	49,393
1868.	1,020,522	5,775,100	6,002,835	153,093	—	94,240

2. *Comparative Stock of Flour in New York, Jan. 1.*

	1870.	1871.	1872.	1873.
Western and State Flour	235,393	518,319	330,197	322,121

Canada Flour.....	575	830	300	1,840
Southern Flour.....	46,560	47,870	25,971	36,700
California Flour.....	1,110	....	100	3,000
Grand total, bbls.....	443,418	565,069	256,271	363,624

8. *Comparative Stock of Grain in New York, Jan. 1*

	1870.	1871.	1872.	1873.
Wheat, bushels.....	4,406,369	3,700,096	4,227,181	1,996,984
Corn, bushels.....	640,500	303,833	1,139,804	6,125,803
Rye, bushels.....	66,630	2,289,035	573,257	110,874
Barley, bushels.....	639,933	192,070	565,772	1,211,176
Oats, bushels.....	1,396,902	1,461,192	2,874,585	1,765,699
Malt, bushels.....	31,111	11,571	129,180	358,402
Peas, bushels.....	47,971	338,330	3,500	9,292

Gold has been as low as 111½, and as high as 112½—closing Jan. 13th at 112½, as against 112½ on Dec. 13th. Business in most kinds of Produce has been fair for the mid-winter season, and values, as a rule, have been comparatively well supported. The Breadstuff movement has been moderately active, mainly in the way

of Flour, Wheat, Barley, and Oats, the dealings in Wheat and Corn and Flour having been in good part for export. Holders have not been urgent in their offering of stock. Flour and Wheat closed in favor of sellers, who were not eager to realize, while the demand was improving. Corn left off tamely, but steadily, at the current rates. Oats have been scarce and wanted, showing at the close an upward tendency. Barley has been firm and in request. Rye has been held above the views of buyers, with few desirable samples available, checking transactions. Provisions have been decidedly brisker, especially Bacon, Lard, Butter, and Cheese, which however have been variable as to prices. Hog products closed rather weak. The finer grades of Butter and Cheese held very confidently at extreme quotations. Hops, Seeds, and Tobacco have been moderately sought after, at the ruling prices. Hay has been strong in value, on a limited supply, and fair call for stock.

CURRENT WHOLESALE PRICES.

	Dec. 12.	Jan. 13.
PRICE OF GOLD.	112½	112½
Flour—Super to Extra State	\$5 75	\$5 90
Super to Extra Southern	6 10	6 15
Extra Western	6 75	7 10
Extra Genesee	7 00	8 10
Superfine Western	5 65	5 95
RYE FLOUR	4 50	4 50
CORN-MEAL	3 10	3 20
BUCKWHEAT FLOUR—#100 lb.	3 00	3 00
WHEAT—All kinds of White.	1 75	2 05
All kinds of Red and Amber.	1 35	1 40
CORN—Yellow	67	67
Mixed	64½	67
OATS—Western	48½	55½
State	52	55½
RYE	83	83
BARLEY	83	116
HAY—Bale, #100 lbs.	1 00	1 15
STRAW, #100 lbs.	85	85
COTTON—Middlings, #10	19½	20½
HOPS—Crop of 1872, #10	37	50
FEATHERS—Live Geese, #10	40	50
SEED—Clover, #10	9½	9
Timothy, #1 bushel.	3 00	3 25
Flax, #1 bushel.	2 00	2 10
STOAR—Refined & Grocery	9	11½
MOLASSES, Cuba, #gal.	18	35
New Orleans, #gal.	55	68
COFFEE—Rio (Gold).	13½	18½
Tobacco, Kentucky, #c.	9	16
Seed, #100 lb.	8	50
Wool—Domestic, #100 lb.	60	75
Domestic, pulled, #100 lb.	45	68
California, clip, #100 lb.	23	45
TALLOW, #100 lb.	8½	8
OIL—Coke, #100 lb.	38	40
PORK—Mess, #barrel.	13	14
Prime, #barrel.	12 25	12 50
BEEF—Plain mess, #100 lb.	10 00	12 00
LARD, in tins, #barrel.	7½	8½
BUTTER—State, #lb.	18	25
Western, #lb.	10	25
CHEESE—	4	14½
BRANDY—#1 bushel.	1	3
PEAS—Canada, frozen, #bu.	1 10	1 12
Eggs—Fresh, #dozen	32	37
POULTRY—Fowls.	6	16
Turkeys—#10	8	17
Geese, #pair.	1 50	2 50
Ducks, #pair.	1 50	2 50
Partridges, #pair.	12	10
WILD DUCK—#pair.	40	2 50
QUAIL—#doz.	1 25	1 12
VENISON—#lb.	12	21
HARES—#pair.	60	70
RABBIT—#pair.	30	40
TURKISH—#100.	1 25	1 50
CABBAGES—#100.	6 00	10 00
ONIONS—#bbl.	3 00	4 00
BROOM-CORN—#bbl.	2	8
APPLES—new, #barrel.	1 25	3 00
POTATOES—#bbl.	1 25	3 00
SWEET POTATOES—#bbl.	3 50	4 25
CARROTS—#bbl.	1 50	2 00
CELERY—#doz.	1 50	2 00
CRANBERRIES—#crate.	2 50	3 50

New York Live-Stock Markets.

WEEK ENDING	Deeres.	Cows.	Calves.	Sheep.	Swine.	Total.
December 10th.	8,850	76	856	25,576	52,730	88,073
December 23d.	6,604	48	799	14,354	51,456	73,342
December 30th.	3,883	51	521	10,197	64,779	45,455
January 6th.	3,883	71	580	25,333	61,667	61,667
January 13th.	5,444	73	607	18,593	31,441	56,128
Total for 5 weeks.	31,680	325	3,194	94,163	201,893	320,755
do. for prev. 4 weeks.	36,205	423	5,809	117,258	218,471	327,276

Beef Cattle.—There were some interruptions in the receipts of cattle owing to heavy snows which blocked the roads at the West. Besides, the railroads are taxed to their utmost capacity in bringing forward live and dead freight, at a time when, more than any other season of the year, cold weather plays havoc with the rails and disables the locomotives. In addition to this, corn is so cheap at the West that cattle men prefer putting it into beef for sale, so they are feeding stock in preference to selling it, having an idea also that they can advance the rates at this end by playing the "hold-back" game, as they are now successfully doing. The receipts were very liberal at close of last report, but dwindled somewhat towards the end of the year. The totals for 1872 were 425,275 head against 830,934 for the previous year. In comparing the source of supply, we find that Texas comes second, Ill. leading off with 241,864, while Texas gave us 59,936, though she was fourth on the list the year before. At this rate of increase, the long-horn and long-legged breed may yet win in the race, as despised as they used to be. We are happy to note an improvement in their quality, some, of rising 7 cwt., fed in Ill., just selling at

12c. per lb. The closing market for all kinds was very strong, the prices obtained being the highest for several months. Drovers are counting upon good markets the rest of the year, even with cheap poultry and plenty of game. As yet we have had no buffalo meat of importance to compete with beef, but there are free arrivals of dressed bullocks slaughtered in Chicago.

The prices of the past 5 weeks were:

	Range.	Large Sales.	Aver.
Dec. 16.....	6½@16¼c.	11½@13¼c.	11¼c.
Dec. 23.....	7½@15 c.	11½@13 c.	11¼c.
Dec. 30.....	8 @15 c.	12 @13¼c.	11¼c.
Jan. 6.....	8 @14¼c.	11 @13 c.	11¼c.
Jan. 13.....	9 @15 c.	12 @14 c.	12 c.

Milk Cows.—With some variations in price, as the supply ruled heavy or light, and as milk was scarce or abundant, the close varies little from the opening. There is a good demand for large cows with fine points, while ordinary milkers go off slowly. The late rise in beef rather helps them. The rates are \$42 @ \$55 each for very ordinary to thinish cows of small size, \$65 @ \$75 for fair to good milkers, and \$80 @ \$85 for prime to extra large cows. **Calves.**—The irregular arrivals ran prices up to high figures about the beginning of the year. Live calves sold at 11c. and would have brought 13c. for a few days if here. Some fat hog-dressed reached 20c., but the high prices soon brought them forward more freely, especially dressed veals, and they are now lower. It should be borne in mind that at least three fourths of the veals now sent here arrive dead, and are not figured in the tables above. Quotations for live, \$10 @ \$14 each for grass-calves; 7c. @ 10½c. for ordinary to prime milk-veals; 6c. @ 9c. for hog-dressed grass-calves, and 10c. @ 14c. for poor to fat milk-veals. **Sheep.**—Lambs are now weighed in with sheep at the same price. Skins average about \$2.25 each. Among the stock of the past month, were many lots of extra holiday sheep, weighing 140 @ 175 lbs., which sold at 8c. @ 9c. All kinds of sheep have advanced very much, and the demand is good, helped by higher beef and pork. The quotations are: for sheep, 5c. @ 6¼c. for poor to medium, and 7c. @ 7¼c. for fair to choice, a few extras going at 8¼c. **Swine.**—Arrivals of Western dressed for the past 5 weeks were 16,127. The market has steadily improved since last report, closing very firm with an active demand. Quotations of live hogs, 4¼c. @ 5¼c.; city-dressed Western, 5¼c. @ 6¼c. for heavy to medium, and 6¼c. @ 7¼c. for light; Western dressed, 5¼c. @ 6c.; State and Jersey, 6c. @ 8c.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.** **Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$8; making a club of 20 at \$1 each; and so of the other club rates.

ALL for a DIME.—All our readers who do not now have *Hearth and Home*, ought to get the one number for January 4th, 1873. Besides its regular

pages, fine pictures, etc., it contains a large Supplement with Mr. Eggleston's new Story, "The Mystery of Metropolisville." Get this number without fail, from the newsman, or a copy will be sent from this office, post-paid, for ten cents.

The German Agriculturist is mainly a reproduction of the English edition, with a special department edited by the Hon. F. Münch. We request our readers to mention the German edition to their German friends. Many persons who employ German laborers, gardeners, etc., subscribe for it in order to supply their help with useful reading matter. The price of the German edition is the same as the English edition. Clubs may be composed of either edition, or part of each.

Subscribe for Both Papers.—The subscription price for the *American Agriculturist* and for *Hearth and Home*, when both papers are taken together, is only \$4, and \$4.75 pays for both papers, and for both the *Chronos*, mounted and prepaid.

"Flowerless" Apple-Trees.—There are trees in different parts of the country which bear apples, and which have the reputation of not blooming. We should be very glad to get grafts of any trees of this character, with whatever may be known of their history.

The Farmers' Club.—We did not think that we could be surprised at anything that might be said or done at any meeting of that remarkable body called the Farmers' Club, of the American Institute, but we did not know its astonishing capabilities, or rather its capabilities for astonishing. At the last session of last year, the chairman gave what is called an annual address, in which, under cover of an obituary notice of Mr. Lyman, he went out of his way to attack, by implication, the agricultural department of the N. Y. Tribune. The reason for this display of bad taste is that the present agricultural editor of the Tribune can find something better with which to fill his columns than to report the nothings said at the Club. There are now few papers in which these gentlemen of the Club can read their names in print, and great is their vexation. We do not know that the Tribune will notice this official reading it out of meeting, but it is due to that paper, and to Mr. Crandell, its agricultural editor, to say that its agricultural department was never so full nor so varied as it has been during the four months in which it has discontinued its reports of the Farmers' Club.

Premiums.—If you would know all about them, see page 73.

A New Field to be Cultivated.—No farmer can cultivate his fields without implements. The plow stirs the soil, the harrow pulverizes and levels it, the drill deposits the seed beneath the surface, where all the powers of nature combine to make it start into growth and bring forth fruit. But there is another field the cultivation of which is not to be forgotten nor neglected, the soil of which must be stirred and in which seed must be sown, and from which the most valuable crops may be gathered. The mind is this field. Let the mind remain untilled and uncultivated, and the labors of the hands are rendered unprofitable. Labor ignorantly performed is fruitless; it is only profitably performed when directed by intelligence. The implements whereby the mind is cultivated are books. The labor which directs these implements is study. No farmer can be without books and papers any more than he can dispense with his plow or seed. He needs them for himself as well as for his children. But if he should think he has lived and roughed it long enough to have gathered something for himself, let him not deny his children an ample supply of books. The farm and a country life are full of suggestions of things which young and old desire to understand and know. "Why, and how is this?" are questions occurring every day, and oftener, and every facility should be given for the investigation and solution of these questions. As they are understood better, the farm is better managed, the crops are heavier, the milk-pail is fuller, the garden is better cultivated, the poultry are more prolific, the hogs and beef fatter, and comfort and prosperity are increased. Books do this, with good papers; but books are indispensable. No one can afford to do without them, much less can a farmer, or farmer's children.

The book-lists published in the columns of the *American Agriculturist* contain those especially adapted to farmers' needs. Some of them at least should be in the hands of every dweller in the country, whether he cultivates the ground or not. Money spent for them is better invested than in lands or stock. Ten or twenty dollars worth of books in a farmer's house will be of more value and bring in more profit, if rightly used, than a cow; in-

deed, than many cows. There are none that can not afford this outlay. One single acre of land, a garden patch, a pig, or a dozen fowls should be set apart as belonging to the library, and the produce invested yearly in books. No investment will result more satisfactorily, and there is none that we would more earnestly press upon the attention of the readers of the *Agriculturist* than this one. By all means buy books, and read and study them; and then buy more. If there is no money in hand just now, borrow it. To go in debt for books is one of the few cases in which debt is justifiable; and the man who thus buys books will very soon be able to repay the loan.

Concrete Houses.—"S. M. H.," Shawnee Co., Kan., asks if concrete houses will gather damp on the inside during wet or frosty weather.—No; the concrete, being very porous, and the pores containing much air, is a much poorer conductor of heat than brick or stone, and the houses built of it are warmer and drier.

Oil-Cake.—"J. S. W.," Carlisle, Pa., asks what kind of feed for cows oil-cake would make, and where it can be procured.—One or two quarts of linseed or cotton-seed cake-meal mixed with each feed of cut-hay is excellent for cows in milk, or a fourth of that quantity will be found of great service for young stock. It regulates the bowels, increases the cream, and keeps a fine, soft, and loose skin. It may be purchased at the seed-store, in any considerable town. The use of these cake-meals should be encouraged, as they tend to enrich the manure and improve the farm, in addition to the advantages enumerated above.

A Boy's Churn.—Geo. P. Williams, Madison, N. J., who is a boy, eleven years old, writes us that he "has got an experience on a churn, which he would like to put in the *Agriculturist*." He sends us a very fair drawing of his plan, which is to connect the handle of the upright dasher by a crank to a handle, the turning of which moves the dasher up and down in the churn. It is very good for so young a boy. By and by, when he gets older, he may hit upon something that older people have not.

STRONG HUMBUGS.—Eighty-three (83) new names have been added to our "Index of Swindlers" since our January report, though a large part of these are only different names assumed by a few operators as a blind to the P. O. delivery clerks or carriers. A common practice now is to get up a plausible letter, multiply it by lithograph or type, and inclose with each copy an assumed name and address written on a separate slip of paper. In this way the swindler can change his address as often as he desires, and faster than he can be followed up by the P. O. detectives, without the trouble or expense of printing new circulars. In other cases, if the swindler gives his real name, and he is followed up, he can deny that the loose paper containing his name was, by himself, connected with the scheme set forth in the accompanying circular or letter. Any one receiving any circular or document with the name on a separate slip, may set it down as proof positive that the whole affair is bogus. Many subscribers have

HOW YOUR NAME IS OBTAINED.

recently written us that their names and address must have been obtained from the subscription-lists of the *American Agriculturist* or *Hearth and Home*, because they have given their address to no one else in this city. They are entirely mistaken. Our subscription-books and letters are carefully guarded, and are never allowed outside the office for any purpose whatever. All letters are carefully preserved for many years, and when too old to be of any use for reference they are burned, or if sold to paper-makers they are so mutilated as to be of no use to others. So careful are we on this point, that if one wishes to address a correspondent, unless he is a known reliable party, he is required to inclose his letter or circular, and we put on the address and mail the envelope from our own office. The fact is, certain parties make a business of collecting the names and addresses of almost every person in the country, including even boys and girls. They classify these names into lists of farmers, mechanics, merchants, etc., etc., and then sell copies of these lists at so much per 100 or 1,000 names. Frequently, one swindler gets a lot of names, and exchanges his list of names with another swindler who has done the same thing. Some publishers, and dealers in various wares, buy lists of the collectors to send out specimen copies or circulars. Any swindler can buy a list under one pretense or another. These addresses are originally obtained from postmasters or their clerks, or from other parties, by paying, or offering to pay, for a list of all the persons residing within reach of each post-office. They promise from 25 cents to \$5 per 100 for such names, or offer some premium article, sometimes sending blanks

for the different occupations to be filled up with names. This is often done under the pretense that the applicant wishes to introduce some new and valuable invention, or otherwise. From numerous letters received during years past, we judge that nine-tenths of those who supply such lists fail to receive the promised pay or reward, and are thus themselves the first victims of the swindlers. The reputable mercantile agencies, such as Messrs. McKillop & Sprague, Messrs. Dunn, Barlow & Co., and Messrs. J. M. Bradstreet & Son, have the addresses of all dealers in the whole country, but they never furnish lists of them to others, or at most only to their trustworthy customers for specific and approved purposes. Our readers, and all others, may therefore understand hereafter that the swindling fraternity have them down in their books, with full name, post-office address, occupation, etc., and that they have not got these from any reputable parties, either publishers or others. . . . Another general ex-

MEDICAL ADVERTISEMENTS.

planation is needed. There are a great number of self-styled doctors, medical institutes, medical associations, benevolent associations, etc., that advertise, by circulars, in newspapers, etc., to cure various diseases, to prescribe by letter, to send medicines and advice by mail or express, etc.—including all sorts of diseases, private ones especially, consumption, eye and ear defects, indeed all the ills that flesh is heir to, and many imaginative diseases. Many of these are very ingenious in writing to awaken fears, excite the imagination, and secure confidence. Let it be thoroughly understood by all that this whole class of advertisers are quacks, more frequently impostors. No physician (of any acknowledged school of medicine) in reputable standing at home, ever advertises to consult with patients, or prescribe, by mail. There are good substantial reasons why this rigid rule should be adopted by the profession, and any one who violates it is utterly unworthy of confidence. Let this be a standing and general answer to the multitude who are continually writing to ask us if this, that, and the other "doctor" is trustworthy. We repeat, that every physician, medical institute, medical or benevolent association that advertises prescriptions, advice, or medicines to be sent to any party is utterly unworthy of confidence, and it is not safe to give them your name or address. This sweeping assertion does not of course include some well-known hospitals or institutions which receive patients for treatment under the direct personal care of well-known physicians. No one should touch any of the numerous medical books on "marriage," "advice to the married," on "female complaints," on "private diseases," on "errors of youth," "early indiscretions," etc. Many of these contain a certain amount of anatomy, physiology, etc., copied from standard works, but there is always somewhere in them a dangerous sting—an open or covert advertisement of a quack, and of quackery. . . . The above remarks save the necessity of dis-

QUESTIONS ABOUT DOCTORS, ETC.

cussing here or answering the numerous letters of inquiry before us, concerning the pretended medical and surgical institutes, under plausible names, in New York, in Boston, in Philadelphia, in Cincinnati, in Chicago, in Milwaukee, and other cities, and in several interior towns in New York, Ohio, Illinois, Michigan, Missouri, and other States. You are asked to address these "institutes," etc., direct, or more frequently some individual who calls himself "Dean," or "Chief Physician," or "President," or "Secretary," or "Professor," but who combines in himself the whole faculty, "Institute" and all. We need not describe such quacks as Reeves, of Nassau st., N. Y., Coulter of Michigan, Metzgar or daughter of Pa., the "Fireside Guard" fellow of Centralia, Mo., and a multitude of others of like character, including every medical circular, "silent friend," etc. Every cancer doctor, consumption doctor, or lung doctor is a quack, no matter what his pretensions. Read and follow the general rules first given above. Don't believe a word of the ingenious stories of "Mother Noble" and her *confères*, who pretend to have found medicines in the Indies, in Japan, in South America, among the Western Indians, etc. Every such story is

IMPORTANT PAPER.

false from beginning to end. [We heartily wish every man, woman, and child in America, who has not done so, would get and read the HEARTH AND HOME for April 20th, 1872 (Vol. IV, No. 16). The Medical Libel Suit, and the editorials on medicines, etc., in that number, if read, would save every reader from much quackery and much suffering. We send a post-paid copy for 10 cents, and it will be worth dollars to every one carefully reading it. The number is electrotyped, and all copies desired can be printed.]

OILS—AGENTS—WATCHES.

. . . . All compounded "oils," "French burning oils," etc., are to be avoided; they are more dangerous than nitro-glycerine, no matter what the sellers may clamor. An operator in Jackson, Mich., appears to be raking in

\$5 bills from those solicited to act as "agents," and giving no return. Our letter-files indicate this much, but we have not finished the investigation, and withhold names. . . . Everybody ought to see through that "\$4 Parisian watch" swindle, even if it had not been already exposed in these columns. Perhaps our present

COUNTERFEIT MONEY.

inquirers failed to see what we wrote about it. . . . The Queer or Sawdust operators (in pretended counterfeit money) still ply their trade of swindling other would-be swindlers. Here are some of the names adopted by the chief rogue in this line: At 34 Amity st., N. Y.: T. Ansbarger, G. S. Bliss, Thos. Bodotte, Thos. Bullis, F. Brantingham, D. Oregon, Thos. Cornell, L. G. Capen, Thos. Delaware, L. Dillinbeck, S. L. Drumm, Louis Ellsworth, D. Hosfort, T. R. Hector, T. Hindman, Chas. Kissman, B. Kelsey, Col. R. McClurg, alias King & Co., Geo. Mesick, Geo. Needham, L. Parison (or Parizon), Ben. T. Richmond, M. T. Robeson, D. Redfern, M. L. Stoddard, Geo. Truax, J. H. Van Tyle, L. F. Winfield, Geo. L. Yates. At 609 Broadway, N. Y.: Thos. Almont, P. Barton, L. Chenangol, Alex. Coombs, Theo. G. Chambers, S. Dolson, Niles Fitch, L. C. Fountaine, Louis Hart, G. L. Kressler, Chas. Noble, L. Rushmore, J. B. Shank, T. M. Shelby, Egbert West, F. R. Whitlow. At 74 Bleeker st., N. Y.: W. H. Benton, G. R. Bangs, D. Dresser, W. Darton, L. Eastman, B. T. Ellison, E. Gillis, S. Monroe, H. B. Meech, C. Melvin, H. Nease, Geo. Richey, L. Waldron, J. A. Wardell. Also: Oscar B. Church, 240 Broadway; W. S. Leslie, Trenton, N. J.; J. M. Ward, 84 Grand st.—All our older readers understand that these are names assumed by a swindler who does not have any counterfeit money at all. He coolly pockets all money sent to him, except when he finds it worth while to send out a few genuine bills as pretended samples, so as to get a larger remittance to finally pocket. The safety of these swindlers lies in the fact that only those who are willing to deal in counterfeit money, ever remit to them, and such persons dare not appear as witnesses. Our space being exhausted, other humbugs are necessarily deferred to next paper.

Book on Market-Gardening.—"J. W. G.," Charlotte, Mich., will find "Henderson's Gardening for Profit," for sale at this office, price \$1.50, the best work on raising market vegetables.

Cones of Spruce Pine.—"E. G. H." asks if trees can be grown from Spruce cones.—The seeds of the Spruce are between the scales of the cones, are small, and have each a thin membrane or wing attached to them. The cones are gathered before the scales open and the seeds kept in them until spring. The seeds of most kinds readily fall out when the cones are placed in a warm dry room. The seeds should be sown as early in spring as the ground can be worked, and the bed shaded by a lattice-work of lath or in some similar manner. There are many difficulties attending the raising of such trees from seeds, and one without experience must not be disappointed if he fails altogether.

Dimensions of Stable Fittings.—

"Subscriber" asks for the following dimensions of the inside fittings of a stable and barn, which we give as follows, viz.:
Width of double stall with stanchions for cows. . . . 6 feet.
Width of feed-trough. . . . 1½ foot.
Width of feed-passage between two rows of cattle. . . . 4 feet.
Length of stall from stanchion to gutter. . . . 5 to 6 "
Length of partitions between stalls. . . . 4 "
Width of stall for horses. . . . 5 "
Length of stall for horses. . . . 12 "
Size of loose box for mare. . . . 10 x 12 "
Size of loose box for cow and calf. . . . 8 x 10 "

If bedding is used a cement floor is not too hard, and it will be cleaner if not covered with a wooden floor.

Doctoring Horses.—

An individual who is not at all modest in the way of praising himself, writes us that he makes "bottles" which he sells at \$5 a dozen, "one of which will cure three horses." He does not state how the "bottle" cures the horses, nor of what they are cured. According to his own statement, he has cured 925 "head" in the last month.—This is one of those quacks of which owners of horses should beware. It is surprising how soon a horse will recover from ordinary complaints if he is let alone and the physic thrown to the dogs. Good nursing and ordinary care in feeding will permit nature to work a cure in nine cases out of ten, while such a "bottle" as above, is either entirely useless or often harmful. Our advice is, attend to prevention of these troubles and let these "bottles" alone.

Weights of Essex Pigs.—Joseph Harris writes us as follows: "I have just killed a pure-bred Essex pig that did not come up to my standard. He was

too coarse, and lacked early maturity and so I fattened him. He developed into a noble hog. His length from between the ears to root of tail, stretching the tape along the back, which was somewhat arched, was 5 ft. 3 in. The length between these points, ascertained by laying a board on his side, was 4 ft. 8 in. Girth back of the fore-legs, 6 ft. 1½ in. His live-weight before sticking was 654 lbs.; weight after bleeding, 641½ lbs.
Weight of rough inside fat. . . . 14½ lbs.
Dressed weight (weighed the next day by the buyer) . . . 575 lbs.

Total weight of carcass and fat. . . . 589½ lbs.
If he had been treated to a ride on the cars from Chicago to New York, he would probably not have weighed so much alive by 8 or 10 lbs., and consequently the difference between live and dressed weight would have been less. But, even as it is, the proportion of carcass to live weight is 88 per cent, or a shrinkage of 12 per cent. This is leaving out the inside fat. Adding this, the shrinkage is only about 9½ per cent. Or, adding both blood and inside fat, the actual loss of offal (even considering the tongue, heart, liver, etc., as offal) is less than 8 per cent."

Feed for a Brood-Mare.—"Subscriber," Darien, Ct., will find sound hay and oats the best feed for a brood-mare. An occasional feed of carrots is excellent, or a handful of linseed-meal in the grain.

Weights of Thoroughbred Hogs.—

L. A. Chase, of Florence, Mass., gives us the following figures, showing the low percentage of offal in thoroughbred Berkshire and Essex hogs bred by him and recently slaughtered at his farm, as follows: Berkshire, weight after bleeding 572 lbs., dressed weight 526 lbs., offal 46 lbs., equal to 8 per cent; Essex, weight after bleeding 412 lbs., dressed weight 378 lbs., offal 34 lbs., equal to 8½ per cent. Another Essex, weight after bleeding 425 lbs., dressed weight 401 lbs., offal 24 lbs., equal to less than 6 per cent. This shows in a remarkable manner the economy of these breeds of hogs over natives or common hogs. We should be glad to receive similar figures from others who have noted the loss on their hogs.

Water-Wheels.—

"J. F.," Preston Co., W. Va., is informed that with a fall of 8 feet a breast-wheel which receives the water at a height equal to half or two thirds of its perpendicular diameter, will give more power where there is plenty of water than an overshot wheel. But where the water is limited and there is none to waste, an overshot wheel will give the best results. A competent millwright should be employed to build the gearing and the wheel when they are required for business purposes; for light work on a farm, any fair mechanic could do the work.

Painting in Winter.—

"H. J. S.," Ballston, N. Y., asks, Can I paint a house at this season, or shall I wait until spring?—There is no better time to paint than in the winter; there are neither dust nor flies to injure it, and generally more leisure. A fine day should be chosen, when it would be not too cold to work.

Plowing in Winter.—

"J. C.," McLean Co., Ky., asks if it would be advisable to plow a clay soil in the winter, or wait until spring?—Such land, in localities where the frost does not prevent it, should be plowed in winter; however roughly it may be done, the alternate freezing and thawing will reduce it to a finer condition than many plowings in the spring could do.

Hand Hay-Press.—

A. E. Depew, Ontario Co., N. Y., wants information about a \$75 hand hay-press, exhibited at the American Institute Fair in 1872.—We saw such a press at that fair, but can not recall the maker's name. The press seemed very well adapted to its purposes, and it is probable that when the manufacturer, who we believe lives on Long Island, desires to sell them, he will advertise them.

The Barn Plan.—

"C.," Hudson, Ohio, is much pleased with the plan of a barn in December *Agriculturist*. He asks how the stable-floor is to be arranged to keep the cows clean, how the manure is disposed of, and is there any plan to save the liquids? Is the floor of plank or cement? Which is the best floor? and how can steam be used in such a barn, to be safe?—The stable-floor should be made with a gutter behind the cows, six inches deep; they will not willingly stand in such a gutter. The manure is wheeled out into the center of the barn-yard and piled in a heap over a cistern, into which the liquid-mannure from the stable drains. A floor of three-inch hemlock plank, coated with hot gas-tar, will last a dozen years. Steam should be brought from a boiler one hundred feet from the barn, or the steamer put in part of the root-cellar, if a good chimney is built.

Potatoes Mixing.—"F. G. M." We have answered the question often. Potatoes of different sorts planted together will not, so far as is known, mix from the influence of one plant upon another. Potatoes often vary or sport, whether planted near others or not, and this has given rise to the idea of mixing in the hill.

Questions about Potatoes.—"C. G.," Cornwallis, N. J., asks the following questions about potatoes: (1) What depth should potatoes be planted? (2) Does the depth at which they are planted affect their rotting? (3) Does the use of stable manure cause them to rot more than superphosphate? (4) Should diseased potatoes be fed to cows?—(1) 3 to 5 inches. (2) No. (3) Rank-growing crops suffer more than less thrifty ones, and mineral manures cause a less rank growth. (4) No, nor to any other animal, unless they are cooked.

Stringy Parsnips.—"C. C. S.," Lee Co., Iowa. If parsnips are checked in their growth by drouth, they are apt to have a hard center. Such, if left in the ground through the winter, will be found in better condition than if dug in the fall.

Hints about Laying Tiles.—"F. L. Deffer, D. C.," gives us the following practical hints, results from his experience in laying 2,700 rods of drains: Have a bucket of water close by when digging drains, and dip the spade therein each time it is put into the ground. In clay soil, the work is made much easier, and the dirt does not stick to the spade. In finishing the bottom pour some water into it; this is better than any level, as water will make no mistake in finding its way downhill; a pint to three feet is sufficient. When laying tile, sort the soft and hard tile by themselves previously, and then lay the soft tile below the hard ones; a soft tile of 2 inches is equal in carrying capacity to a 2½ inch hard one. (?) Before laying the tile always look through it; there may be something in it to prevent the passage of water, by which the drain may be spoiled. In laying 15 miles of drains, he has found a dozen tiles closed either with mice-nests or something else.

Ice-House.—"C. O. G.," Hannibal, Mo. In the *Agriculturist* for December, 1871, we gave plans and elevation of an ice-house, with full descriptions, of which we have had several favorable reports, and which for ourselves did good and satisfactory service.

Broom-Sedge.—"W. S. T.," Hawksville, Ky., asks how broom-sedge may be prevented from spreading over the meadows or be destroyed. When his lands are laid down to grass, the broom-sedge appears after two years and takes entire possession.—This is a difficult matter. This grass—for though it is called a sedge, it is a grass—thrives on poor land and on rich, and mowing only increases its vigor. There is no help but in its thorough eradication from the soil by a summer fallow followed by hoed crops for a year or two, and in these processes taking care that no roots are left in the soil to sprout again.

Jerusalem Artichoke.—"B. F. C.," St. Joseph, Mo., sends us a printed hand-bill describing the Jerusalem Artichoke, and offering seed for five to eight dollars per bushel. It states that the average crop is 1500 bushels per acre, besides six tons of fodder from the tops, with many other equally fraudulent and absurd statements. He asks, what do we think of it?—We think any one paying \$5 for a bushel of seed will live to discover that he has been swindled, and will fail to realize the promises of the man who offers the seed.

Lolling of the Tongue.—"E. A.," of Iowa, wishes to tell O. S. C., that the reason a horse lets his tongue hang out of his mouth, is that he has it over the bit; the remedy is to take care to keep the tongue beneath the bit by any means possible.

Proper Pipe for a Ram.—"G. Van D.," Buckingham Co., Va., proposes to make a pipe of pieces of heart-pine hollowed out, so that when two are nailed together they will form a pipe; this he designs to convey water from a ram. Would it answer?—We think not. There would be too much waste, which would use up more water than a ram could supply. We would recommend tin-lined lead pipe for the discharge, and cast-iron pipe for the feed.

Drainage.—"A. M. W.," Mitchell Co., Iowa, asks, Should drains in an orchard be put under the rows of trees or between them? Will subsoiling fill the place of underdraining?—Drains should be put between the rows of trees, for many reasons. In an old orchard, they could not be put otherwise; in a young one, the roots would soon penetrate and choke the drains if they

were beneath the trees. Subsoiling can only permit the water to sink in the soil; it can not remove it or lower the water-level, but draining does. Subsoiling dries the surface, draining dries the subsoil as well as the surface.

Drive-Well.—"J. M.," Solon, Tenn., wants to know all about the drive-well. It consists of an iron pipe with a sharp solid point at one end, and with several holes perforated immediately above the point. This is driven into the soil until it reaches a spring, when a pump is attached and the water with loose sand is drawn up until the water runs clear. It is then complete. Of course it does not answer for wells deeper than 24 feet.

Complimentary.—We are often in receipt of letters similar to this from Mr. K—, of Elizabeth; but this comes in such a shape that we confess it to be very satisfying. He says: "I wish to tender my thanks for the suggestion of the muzzle for a cribbing horse in the October *Agriculturist*. I took the paper and my horse to my blacksmith, and he made a muzzle like the one described, and my horse, which is a valuable one and had no other fault, is cured. This alone is worth to me more than ten times the subscription to the *Agriculturist*."—This letter needs no comment. We have many like it every week, and it is one of our compensations that our efforts to diffuse useful information are successful and are appreciated. It would further gratify us to know that our friends would take sufficient interest in the welfare of their friends and neighbors to see that they read the *Agriculturist* also.

Contributor.—"T. R. M.," who wishes to write for the *Agriculturist* and *Heath and Home*, is advised to learn to write and spell before appearing in print.

Cheese Factory.—"A. Logan, Milwaukee, intends to start a cheese factory, and wants to know the cost of one, and the number of cows necessary. Six hundred cows would be as few as could be made profitable; a factory for that number would cost \$1,200 to \$1,500. Parties having such intention, should visit Little Falls, Herkimer Co., N. Y., where there are a dozen factories located, and inspect them for themselves.

Enlarged Liver.—"T. C.," Union Co., Ohio, says his hens are dying with an unknown disease: the comb turns black, the fowl drinks a great deal, seems stiff, and dies; the liver is four times as large as it should be.—It is caused by over-feeding. Give less grain and more vegetables, chopped cabbages, crushed or finely chopped potatoes, and if they are cooped up, plenty of gravel, and a little copperas in the drinking-water.

English Breakfast Bacon.—"M. F. R.," Springfield, O., wants to know the method of curing the English breakfast bacon, and how to prepare the yellow cloth it is wrapped in.—The bacon is made from the belly and thin rib; the bones are removed, the pieces of meat are rubbed with salt on the flesh side, and laid on a bench from which the moisture can drain away, one upon another, with the flesh side upward. They are rubbed with fresh salt every day, and reversed in order, the top piece one day, at the bottom next day, and so on for ten days; they are then smoked. When packed they are wrapped in brown paper, and then sewn up in cotton cloth and covered with thick lime-wash, colored, if desired, with yellow ochre.

Best Stock for Mountain Pastures.—"T. W.," Tusculum, Ala., wants the best stock for a mountain pasture, also the best winter pasture for them.—The best horned stock for such localities as this is the Devon, if beef only is wanted, or the Ayrshire if dairying is the object. The best sheep, if wool only is sought, is the Merino; if wool and mutton is the object, the Cotswold. The best hogs would be the Essex or Berkshire. Native stock might be purchased, and good males of the above breeds used on them; in a few years the improvement would be very great, and much profit result. Blue-grass (*Poa pratensis*) pastures specially reserved for the purpose make the best winter feed; orchard-grass and red clover the best early pasture; timothy and blue-grass mixed is the best summer pasture.

The Australian Blue-Gum.—"J. R. R.," asks if the Blue-Gum, *Eucalyptus globulus*, of Australia, would probably be found hardy in North Carolina, planted around out-houses and barns as shade-trees.—It has not succeeded in Georgia, but flourishes finely in Florida, and promises to be the leading shade and timber tree of California.

Sickness amongst Sheep.—"E. Wicman, Mecosta Co., Mich., has had sickness amongst his sheep. They lost their appetite, drooped their heads,

were stupid, restless, and had much dysentery, with drawn-up bellies and loss of end. They had good pasture, with a range in the woods. He asks advice.—It is quite probable that the sheep had eaten some poisonous weed. At this season of the year, the *Kalmia angustifolia*, or Sheep Laurel or Lambkill, very common along the edges of woods, is readily eaten by sheep and is often fatal. The symptoms are similar to those described above. We have in such cases given an ounce of Glauber's salt to a full-grown sheep, followed in a few hours by a table-spoonful of the following mixture: 1 pint of peppermint water, 2 ounces prepared chalk. This is easily administered by means of a small long-necked bottle, inserted between the jaws at the back of the teeth. It is useful either in case of poisoning or simple dysentery.

Injured Grape-Vines.—"Subscriber," Austin, Texas.—Your vines which were frozen after the shoots had made a foot of growth, are no doubt much weakened. Your best course is the one you propose: cut them down to near the ground, and grow a single cane, or two, as you think the root will best support.

Utilizing Night-Soil.—"J. T. G.," and others, Hanover Co., Va., will find a reply to their questions in the *American Agriculturist* for October, 1872. The matter is there treated fully.

Wells or Springs.—"J. R. Roberts, Stocks-ville, N. C.," halts between two opinions, viz.: whether he shall dig a well, or convey water from a spring, in pipes, 500 yards.—If the expense of laying the pipes can easily be borne, we would not hesitate a moment at the cost of laying 1500 feet of tin-lined pipe, 1½ inch in diameter for the first 1000 feet, and 1 inch for the remainder of the distance. In that distance the pipe needs to be of large caliber, or the friction overcomes the force exerted and no water will escape at the outlet.

Lime and Manure.—"L. C. B.," Beltsville, Md., asks if lime and manure should be used the same year, or if the lime will injure the manure.—The general and successful practice is to put on the manure, and prepare the ground for the seed, fall wheat or rye; then spread the lime, then the seed, and harrow both in. The manure is not injured if any ammonia is set free; the soil absorbs it and the young plants appropriate it.

Cashmere Goats.—"J. F.," Edwardsville, Ind., wants to know the result of the trial of the Cashmere goats.—This goat is hardy enough and thrives very well. In California, there are said to be now 40,000 pure-bloods and grades in existence, but as yet there is no market for the wool, as there is not enough produced to furnish one small mill. When the produce becomes sufficient there will be a market for it, but we do not advise any to go into the business while they can raise sheep.

Carbon-Paper.—"J. T.," Westfield, N. Y. The "carbon-paper" used for tracing and in manifold writing, is made by filling the pores of soft unsized paper with lamp-black. Oil—castor-oil or lard—is mixed with the black, and as much is rubbed into the paper as it will hold, and all that is superfluous is wiped off with soft cloths.

Catarth in Horses.—"T. Gordon, Kittrell, N. C.," writes that he has a horse troubled with a running at the nose, accompanied by a film, which grows over the eyes and causes temporary blindness.—It is doubtless a catarthial affection, and the trouble with the eyes is sympathetic. Feed warm bran-mashes and scalded oats, give powdered gentian root and sulphur in the feed, and wash the nostrils and bathe the eyes with a weak solution of sulphate of zinc. Keep the horse in a warm, well-ventilated stable, free from drafts.

Staggers.—"C. A. M.," West Middlesex, has a horse, which seems weak in the hind parts; he staggers, falls down suddenly, gets up, and shakes his head. He does not know what ails his horse nor what to do for him.—This is stomach staggers, and is caused by indigestion; it sometimes becomes chronic by neglect, and in one of the attacks the horse may never get up again. It may be prevented by giving the horse easily-digested food and keeping the bowels loose; bran-mashes and boiled oats and cut and moistened hay should be fed, in limited quantities, and he should be prevented from eating his litter.

Value of Tanner's-Waste.—"G. V.," Dayton, Ohio, can procure a large pile of refuse lime from a tannery, in which hair and scrapings of hides are mixed, and asks if it is worth hauling and if it would injure his clay land.—We have gladly paid two dollars a load for the same kind of waste, and believe it to be worth that sum for a top-dressing on grass lands, or plowed in for wheat, or for composting with swamp muck.

To Nurserymen, Florists, etc.—We have received a circular from the "*Cercle Horticole Lyonnais*," the purport of which is that they would like to receive the catalogues of dealers in all parts of the country. The Secretary of the Cercle is our esteemed correspondent, M. Jean Sisley, Rue St. Maurice, Moulplaisir, Lyon [Rhône], France, to whom all catalogues, etc., may be addressed. We may remark here that Lyons is one of the most active horticultural centers in Europe, and that the people there are desirous of entering into more intimate relations with our horticulturists.

Orchard.—"Ground-Turner." If your orchard has been manured freely for many years, no particular injury will be likely to result from omitting the manure for a year. Lime, if readily obtainable, would be an excellent application in this case.

Rape for Sheep.—Mr. Bowles, of Hamilton Co., Ohio, writes that he sowed an acre of rape after oats. "I turned in the sheep," he says, "November 6th. I could not pasture it earlier, because there was no fence between it and a cornfield. It was just out of flower. The sheep ate up every seed-pod, leaf, and stalk. The patch is as bare as a turnpike road. I think I will sow more next year."—We should not have expected that rape sown after oats, say in August, would have flowered before winter. We sowed several acres in July, and none of the plants showed any indications of flowering. In our own case, as with Mr. B., the sheep ate it all up clean.

Sawdust for Bedding.—"Subscriber," Marsh Creek, Pa., says he has used sawdust for bedding, and found the manure about equal to rotten wood, which he thinks unable to produce grass or any other crop. But he thinks it an excellent mulch for trees. [If the sawdust was from pine, this would probably be its effect; hard-wood sawdust is more valuable.—Ed.]

Now comes Colorado with her addition to the ranks of agricultural journals. The Colorado Farmer is to appear, as we learn by a prospectus from Febles & Phillips. It would have helped matters some had they stated *where* their paper is to be published, as Colorado is a rather vague direction.

Yachts and Scows.—Several requests for information about building small sailing boats or yachts and scows have been received, and although they are necessarily laid over for the present moment, they are not forgotten; they will be quite seasonable by and by.

Beans and Pod for Name.—W. C. Rydd, Du Page Co., Ill. The beans seem to be the White Kidney; at any rate, they are "as like as two beans." The pod is half a ripe seed-vessel of *Martynia proboscidea*, sometimes called Unicorn Plant. The green and tender fruit is much valued for pickles; it however soon becomes woody, and when quite ripe is as hard as horn.

FREE.—The very Best Table Cutlery—Silver-plated Table Articles—Gold Pens—Indelible Ink—Children's Toys—Flower and Garden Seeds—Floral Sets—Sewing and Washing Machines and Wringers—Knitting-Machines—Melodeons—Pianos—American Watches—Single and Double Barrel Guns—Astral Oil-Pumps—Family Weighing Scales—Dictionaries—Books—Toy Steam-Engines—Toy Steam-Boats—etc., etc., etc., are among the things

that we are distributing very largely all over the country to our friends who send in clubs of Subscribers. Some report getting as many as fifty subscribers a day. Others get one, two, three, or more, as opportunity serves. Some make this their sole business, and sell the premiums received, and thus get large wages. There is no humbug or clap-trap about this. At least Fifteen Thousand persons have received these premiums with great pleasure, and still, not one in ten of those who ought to read the *American Agriculturist* and *Hearth and Home* for their own pleasure and profit, is yet supplied with it. So there is abundant room for thousands of others to obtain these valuable premiums. This work can go on all winter.

Worthy of Everybody's Attention.

The fine Premiums offered on page 73 are well worth looking into. Over **15,000 Persons** in all parts of this country, in British America, in Australia, in the Sandwich Islands, in South Africa, and elsewhere, have each obtained one or more of these valuable articles, with little trouble, by simply collecting a list of subscribers. This has been done by many Children, by many men in all pursuits and professions, and by a large number of Ladies. See "A Good Paying Business," on 2d cover-page.

Treatment of Sheep.—J. H. Johnson, Greeley, Col., asks some questions about treatment of sheep. He procured his flock from Iowa in February, 1871; clipped five pounds of wool per head on the average; the cost of wintering was one dollar per head, and the loss from last severe winter was ten per cent, which was comparatively small for Colorado that season. He asks particularly about catarrh and scab.—We have found no treatment to affect catarrh, except tarring the sheep's noses liberally and making them lick and swallow some of the tar, and the removal of the flock from level, damp fields to dry hill-sides. Sheep grazed on hills seldom have catarrh, when on flat meadows or damp creek bottoms they always have it. Salt is of no avail for scab. The sheep should have plenty of sulphur in their salt, and be dipped in carbolic sheep-dip, which is especially prepared for this purpose, or be treated with carbolic ointment. Your druggists can procure it. Buchan's preparations are best.

Mummy-Wheat—Eye-Stones.—"L. S. G." We have heard of nothing to controvert what Prof. Gray says about mummy-wheat. An eye-stone is not a stone at all, but a part of a shell, and is consequently carbonate of lime. When put into vinegar carbonic acid gas is liberated in the form of minute bubbles. The formation and escape of these push the eye-stone along. As to its "power of adhering to any foreign substance in the eye," we don't believe it has any. When put between the eyelid and ball, the eye-stone is a foreign substance which the muscles are trying to get rid of, and in forcing this out small objects are likely to come also.

Sheep and Where to Raise Them.—"R. Y. M.," Sherman, Texas, would go into the business of sheep-raising, and wants to know the proper locality for it and the proper kinds.—For keeping sheep in large flocks we know of no locality that can surpass the buffalo-grass region of Western Kansas, and the kind most suitable for pasturing there would be the native ewes improved by pure Merino rams. There is a constant demand for half and three-quarter bred Merino wool, which such sheep would meet.

Washing-Machine.—"H. G. S." We can not undertake to say which is the best machine made. We like Doty's as well as any we have tried.

Strawberries.—"Strawberry," Dunleith, Ill., has two acres of strawberries, and asks if he can improve the yield by the use of guano or plaster.—As he omits to state how they are planted, it is difficult to advise. If they are in hills, a dressing of 300 lbs. of guano to the acre would be of service, as would fine compost. If the vines are matted together, put out a new plantation early in spring, and get what the old one will yield with out manure, and plow under.

Pigs Losing their Tails.—"G. D.," of Ga., has had "two litters of pigs which, when two weeks old, lost their tails. The tails withered and dropped off, leaving stumps half an inch long. What is the matter?"—This is not an uncommon trouble. The so-called Ches-hire or Jefferson Co. breed of pigs are particularly liable to lose their tails. We have thought that it indicates too close breeding, and a weakened constitution. Some of the English breeders of Yorkshire (from which the Cheshires are derived) have also had the same trouble. The immediate cause of the difficulty is a speck of fungus growth on the tail. This spreads till it surrounds and "girdles" the tail, which in a week or ten days, as our correspondent says, "withers and drops off." The remedy is to rub the tail with carbolic soap and crude petroleum. This is generally effectual if applied early enough, or before the tail is completely girdled. As soon as there are any indications of the difficulty, we

would rub a little carbolic soap on the tails of all the pigs in the litter, and keep them well oiled with petroleum. This will usually save them. If these articles are not at hand, rub the tails with lard and sulphur. The ring may sometimes be removed with a penknife, but carbolic soap or a weak solution of carbolic acid and petroleum is the best remedy.

Small Breed of Pigs Wanted.—C. L. Crowell, of Wisconsin, writes: "Pork is only worth \$3.40 per 100 lbs., live weight. Many farmers are sick of raising hogs, but not all of them. The demand for a smaller breed is greatly on the increase. The butchers will hardly buy a large hog at any price."

"Will Plaster fix Ammonia?"—If the plaster is dissolved in water, yes. If dry, or merely moist, no. So far as fixing ammonia is concerned, scattering dry plaster on a manure-heap will do no more good than so much fine earth.

Do Snakes Swallow their Young?—It is a very common belief that certain snakes, especially the "Water-snake," offer themselves as a refuge for their young on the approach of danger. The young snakes are said to run into the open mouth of the parent and hide there until it is safe for them to emerge. This is told not only of snakes in this country, but the same thing is in England believed of their viper. The matter is not accredited by most of our naturalists, but one of our acquaintance, thinking that popular beliefs have some foundation in fact, asks for evidence. If any of the readers of the *Agriculturist* have any observations upon this point, we should be glad to hear from them.

American Devon Herd-Book.—The third volume of the American Devon Herd-Book, Horace M. Sessions, South Wiltbraham, Mass., editor, has been received. It is now ready to deliver to subscribers, and will be sent by mail, post-paid, on the receipt of \$3. The first and second volumes \$2.50 each, or \$4.50 bound together. Davy's first and second volumes of English Devon Herd-Book—published in 1851 and 1853, and republished in this country in 1855 by Col. L. G. Morrie and Snaford Howard—bound in one, \$4.50. The foundation of all the Devon herds in America are recorded in these volumes, and most of the present herds are traced back to animals found recorded in Davy's first and second volumes. The fourth volume of the American Devon Herd-Book will be published in 1875, or as soon as a sufficient number of pedigrees are received to warrant it. All authentic pedigrees, written out in the form of the third volume, and sent to the editor at any time, with the fee of one dollar each, will be preserved for record in the fourth volume.

Stock for the South.—Geo. H. W., Gallatin, Tenn., asks if the Essex swine and Devon cattle are suitable for the Southern States.—Yes, probably better than any other varieties, unless it be the Ayrshire cattle, where dairying is the object.

The Chromo Delivery.

We regret that the delivery of our **CHROMOS** to subscribers has not been so early and rapid as we had fully expected. More time than was calculated upon has been required to work them off in the best manner. The two new powerful steam-presses upon which they are being printed needed some adjusting, which required time; and there was unlooked-for delay in getting a large supply of paper, which is of a peculiar kind, and had to be specially manufactured. Even these slight delays are far more annoying to the Publishers than they can be to their readers. But patience and experience are overcoming all difficulties. A large number of those first on our list will have received the Chromos before they see this, and we shall push on the work with all possible rapidity consonant with the best results. Our readers will be much pleased with the beautiful pictures, and we only ask their kind indulgence if they do not come quite so soon as they would wish, and as we would greatly desire to have them go out. As all the Chromos are printed from transfers, leaving the original stones perfect, there will be no difference in the quality, or if anything there will even be improvement as the work goes on. The number that can be printed is unlimited, so that no one will be omitted.

 See Page 73.

The second and third Cover-pages give information of interest to every subscriber, whether old or new.

The Trophy Tomato.—Col. Waring's premium of \$100 for the best tomato grown from his Headquarters seed has been paid to Mr. E. S. Renwick, of Millburn, Essex Co., New Jersey, for a very fine smooth tomato, weighing 19½ ounces. There were others larger, but they were much inferior in form to this one, which was absolutely perfect. The entire Headquarters stock of the Trophy tomato has been sold for a large sum to Peter Henderson & Co., the well-known seedsmen and gardeners, who know a good thing when they see it. Henderson & Co. intend to keep up the quality of the Headquarters seed by a most careful and rigid selection of the fruit from which the seed is taken, believing that if they follow the course by which this tomato has been developed through a quarter of a century, they will improve it still farther.

Cranberries.—"H. P. D.," Phillips, Me., asks how it would answer, in absence of sufficient water to flow a plantation, to construct a reservoir and lay on hose from that, and sprinkle the vines with water before sunrise after there had been a frost.—This matter being referred to Mr. J. J. White, author of "Cranberry Culture," he replies: "The plan proposed by Mr. D. would, in my opinion, counteract the ill effect of any ordinary frost, and might be of practical value upon a small scale. It would be of little use, however, upon a large plantation, the proper time for applying the water being so limited."

Labor.—It is necessary to repeat that we can not undertake to procure laborers for farm, house, or any other work; that we know of no way to procure cheap Chinese or other labor. When we wish help, we go to the intelligence and emigration offices and get the best we can find. Sometimes we are well suited, but twice out of three times we get that which is not help in any sense. Those who have written about labor will please accept this as an answer, and those who propose to write will consider themselves answered in advance.

Condensed Milk.—"J. B.," Pulaski Co., Va., would go into the business of condensing milk for the New York market, but lacks information about it.—We advise him and others who seek similar information to turn their ideas toward some other mode of disposing of their milk, unless they have a large capital to invest, and either possess or can secure the requisite technical skill. It is a very different business from canning fruit or oysters, and requires extensive buildings, costly machinery which is protected by patents, and experience only gained by practice. There have been many failures, and the man who has made the only striking success is one who possesses rare genius as an inventor.

Farming without Hard Work.—"Cultivator," Meadville, Pa., asks: "Could I succeed in general farming if I studied good books? I have not taste or ability for hard work."—No, sir! Not all the books in the world will make a farmer, nor all the advantages of a farm, well stocked, freely given by a father, without hard work. Farming must be learned by actual practice, as painting, printing, or making horseshoes; when it is learned, if one has the means and is a good manager, he may succeed with hired help and constant supervision. But he must know what to do and how it should be done, thoroughly, or he will surely fail.

Dairy Matters.—"E. J. T.," Marion, Ill., asks if deep tin milk-cans standing in water will rust; and if circulation of air is necessary in a milk-room.—Tin cans kept constantly in pure water do not suffer from rust, it is exposing them to air when wet and letting them dry slowly that rusts them. Every milk-room should be perfectly well ventilated, but should not have strong drafts blowing on to the milk.

Magnolia.—"H. A. L.," Nord, Ind. Your question not understood. We read your other word as "Cantabrig," and know no such tree.

Dog Laws in Ohio.—John S. Bowles, of Ohio, writes that they have three laws in Ohio against dogs, besides the one making their owners responsible for the damages they may do. 1st. "Any person can kill a sheep-killing dog at any place." But we presume the person runs the risk of being able to prove that the dog kills sheep. He can not do it on mere suspicion. 2d. "Any person can kill any dog running at large off his master's premises unless his master is with him"—or, we presume, some one else that has him in charge. 3d. "Any person killing a dog at any place or under any circumstances can only be made responsible for the value of the dog reported for taxation, at the annual assessment. If the dog is reported for taxation worth \$5, the owner can recover not more than \$5. We like this latter clause, unless malice or wanton cruelty, or sheer thoughtlessness can be shown. Much as

we detest sheep-killing dogs, we would not make a law that allows a man to kill a pet dog, merely to spite us on the payment of his assessed or real value. We have had dogs that we would not have had shot for ten times their real value.

Drilling Corn in Straight Rows.

Mr. H. Willard, of Wisconsin, says he drills his corn in rows four feet apart, sowing two rows at once with an ordinary grain-drill. To make the rows straight, he "takes a light rod and fastens it to the center of the tongue of the drill with two staples, in such a way that it can be easily moved from one side to the other, and rest on the frame of the drill just forward of the wheels. A trace-chain is suspended from the rod to run in the last row planted, and thus act as a guide. At the end of the row, before turning round, the rod is changed to the other side, and it will then indicate the exact point at which to start ahead." We have frequently recommended a similar plan, but thank Mr. W. for calling attention to it.

Greenhouse Construction.

"H. D.," Chillicothe, Mo., inquires for more definite information about the construction of "Cheap Greenhouse," given by Mr. Henderson in December number of *Agriculturist*. Mr. Henderson supposed that any carpenter, or any one handy with tools, could easily find a way of fitting the rafters to the gutter or ridge-pole to a greenhouse, as there is no reason why it should be in any way different from the rafter that is fitted to the wall-plate and ridge-pole of a barn-roof.

Fish-Culture.

"R. C.," Meadville, has a place with a little brook that can be dammed without much trouble, and would try fish-culture; he wants advice.—The great difficulty in fish-culture is to have a proper locality. If trout are to be raised, there must be spring water of even temperature the year through, and safety from freshets. Then there must be a natural aptitude or taste for the pursuit, and patience and plenty of that common-sense which is most uncommon. Then, if in addition to these one has the necessary means, he had better write to Rev. Wm. Clift, Mystic Bridge, Ct., or some other expert, and engage him to examine the water privilege and lay out his ponds.

Peach Orchard.—A Rhode Island correspondent has sufficient faith to set out a peach orchard. The land is just cleared, and he asks us if it would be better for him to burn the brush and leaves, or remove the brush and burn it elsewhere and let the leaves remain.—We should by all means follow the last-named proceeding. The ashes from the brush will be useful hereafter. The advice is not asked, but we will state that the best peach-growers in Delaware grow corn between the rows until the trees come into bearing.

North-eastern Bee-Keepers' Association will hold its third annual meeting at the Butterfield House, Utica, N. Y., on the 5th and 6th of the present month. All interested in bee-keeping are invited to attend and participate.

Rape for Cattle.—B. Ross, of Minn., asks if rape is a good crop to raise for cows.—No. Its chief value as green food is for sheep. We do not think it is likely to become a common crop in sections where the snow is so deep that sheep could not eat it on the land during the latter part of autumn and winter.

The American Bee Journal.—This periodical, devoted to the interests of bee-keeping, and long and ably edited by the late Samuel Wagner, at Washington, D. C., is henceforth to be published at Chicago, under the editorship of Rev. W. F. Clarke, the recently-elected President of the North American Bee-Keepers' Society. Mr. Clarke assumes charge of the Journal at the request of a large number of the leading apiarists of the country, who believe that in his hands it will be ably conducted, and will be devoted, honestly and impartially, as heretofore, to the advancement of apiculture. Mr. Clarke is an experienced agricultural writer and a practical bee-keeper. He was for several years editor-in-chief of the *Canada Farmer*. Having confidence in the American Bee Journal under his management, we commend it to all who are interested in bee-keeping. Price \$2 a year, in advance.

North American Bee-Keepers' Society.

The above-named Society held its annual meeting at Indianapolis, December 4-6. Its proceedings were of great interest to bee-keepers, who were in attendance from all parts of the United States and Canada. Among the resolutions passed, was one authorizing the President

to address a circular to all North American bee-keepers, inviting them to co-operate with the Society by forming neighborhood, county, State, Territorial, and Provincial associations, for the promotion of bee-keeping. The officers elected for 1873-3 were: *President*—Rev. W. F. Clarke, of Guelph, Ontario; *Secretary*—Rev. H. A. King, New York; *Corresponding Secretary*—Gen. D. L. Adair, Hawesville, Ky.; *Treasurer*—Hon. M. L. Dunlap, Champaign, Ill. The next annual meeting will be held at Louisville, Ky., the first Wednesday in December, 1873.

Bee Notes for February.—By M. Quinby.

Mr. S. B. writes: "Before I commence keeping bees, I want your decision whether it will pay to keep 100 hives."—I answer, Yes, and No. Either is correct, according to circumstances. He gives no conditions upon which to form a decision. If his bees are in a locality where the principal sources of honey are deficient—clover, basswood, and buckwheat—he would be likely to fail with that number, or any other except a very small one. If these sources are ordinarily abundant, and he expects to kill his bees to get his profit, as they did fifty years ago, he will find it occasionally missing in some of the poor seasons that we are having now, and perhaps lose the original stock. If "S. B." has no knowledge of the business, and depends on the stories of the patent-hive vendors, that "the use of their particular hive" will make him rich without an effort, he will be deceived, and, like many others, wish he had not invested.

Had he inquired of the *Agriculturist* if it was profitable to raise wheat, it would have been first necessary to know the man, what his ability, what his soil and climate, before an answer as to probabilities could be given. Some men get rich and some get poor by raising wheat. When the country was new, the first crop on a piece of land, without the exercise of much skill, was a success; but as the country grew older, the crop was attacked by the fly, mildew, and weevil, and it became necessary to exercise sufficient knowledge to ward off these attacks. So with bees; they are not so uniformly thrifty as when the country was new. We have to provide means to avert the effects of wet, cold, dry, and unproductive seasons, and secure a double yield when circumstances are favorable.

If Mr. S. B. has experience to aid him in emergencies, and understands their nature sufficiently well to know what bees will do under any conditions, he will be on a level with the mechanic who has fully served his apprenticeship, or the physician or lawyer who has completed a thorough course of study, and will be likely to find the undertaking profitable. Something depends on what we mean by "profitable." If money-making is the object, first see if the same amount of labor and capital in some other available channel will not turn to better account. It may be profitable for some men to earn their living and be square with the world. One need not expect to become a millionaire by keeping bees. Some expect to get money without giving in return money's worth, and as I have never practiced in this school I can not advise. But where one wishes to make two blades of grass grow where but one grew before, I am willing to assist him with advice.

Millions of dollars worth of honey in New York State alone are annually lost through ignorance of means to collect it.

The movable-comb hive will aid—perhaps indirectly—in collecting a greater portion of this than has ever yet been stored. Avail yourself of this aid. Let observation or experience decide in what form it shall be. Let the hive be sufficiently large to accommodate all the bees with room to labor in the season of honey without crowding. Much honey is lost for want of room in which to store it. If boxes are used for surplus, get them ready now, before the busy season arrives, when there is no time to deliberately think of anything. Time is worth only half as much as at harvest.

By using the extractor, and furnishing an extra number of empty combs, and thereby saving the bees the expenditure of wax, and time to construct combs, the amount of honey over what is made in the surplus box will be trebled. You can use any good clean comb from box-hives that you may have, transferred to frames—rejecting drone comb—instead of waiting for the bees to construct new. If no empty combs are to be had, the empty frames may be put in to be filled. Once full, with care they will last twenty years. In a honey harvest, they may be emptied once in three or four days, or a week. Have the extractor at once. Near neighbors, having but few bees, could own an extractor in partnership.

The necessity of a large hive is apparent, even when surplus boxes are used. Recent experience has taught us that with it we can often quadruple the product of honey. If the beginner can not purchase his bees in such a hive, ready for work, get the common box-hive,

and transfer the combs and bees to the movable frames the first convenient season. You will thus get some experience, if nothing else. The transferring is as easily managed as many farm operations. Above all things, do not depend on patent hives helping you to anything.

Do not forget what was said in December regarding the effect of steady cold.

Drones and Swarming.—Mr. J. C. Christian, Roanoke, Ind., writes: "When bees kill off their drones in early spring, before they are out of the cell, as well as after, will they then swarm before you see any of the second crop of drones fly out? Should honey become suddenly abundant, and keep favorable, my opinion is that they will swarm about two weeks after the second crop of drone-eggs is laid. Am I right?"—To this Mr. Quiuby answers: A strong colony of bees, with a fertile queen, and abundance of honey on hand, will rear drones at the commencement of warm weather, usually in May. Yet but few swarm then in this latitude. If honey should become scarce between fruit-blossoms and clover—it does sometimes—the mature drones are destroyed, and even the chrysalis is often dragged out and sacrificed. When honey is again abundant in the flowers, more eggs are deposited in the drone-cells. The swarm may issue before a drone appears. When a stock has too little honey to afford to rear drones until the flowers yield it, they will occasionally swarm before drones appear. The appearance of drones is not a certain indication of swarming. But when they are destroyed, it indicates that honey is scarce, and no swarm need be expected at such time. If it occurs late in the season, they may not swarm, although they may rear drones. A hive that has not reared any drones until the flowers yield honey is much more likely to swarm than one that has destroyed them once. The queen does not lay drone-eggs exclusively at any time, but a number of both drone and worker eggs daily for months in some seasons. Drones do not appear to control the swarming. We consider so many of them a useless horde of consumers, and take measures to prevent the bees from rearing so many. We find that if the queen lays her eggs in drone-cells they hatch out drones, if in worker-cells they are workers. Acting on this hint, we cut out all the combs from a box-bive, transferring them to movable frames, rejecting drone-combs, and without them they can raise no drones. We think that we know better than the bees when we want swarms, and control that also. If we want swarms—which is not often now—we make them artificially.

TAKING SALMON SPAWN ON THE PENOBSCOT.—Good progress is making in the work of restoring salmon to our barren streams. The great difficulty has been hitherto in securing spawn. Our fish commissioners and breeders have had to send to Canada, and pay 40 dollars in gold per thousand for the eggs. This prevented any large stocking of our streams. Last year an Association of Fish Commissioners and Breeders secured the services of C. G. Atkins, and demonstrated the practicability of buying salmon of the Penobscot fishermen, keeping them through the summer in pounds, and taking the spawn in the fall. About 72,000 spawn were taken, and 96½ per cent impregnated by the dry method. The cost of the eggs was about 18 dollars a thousand. This year Mr. Atkins purchased over 600 salmon, in June and July, and early in November took 1,500,000 eggs. They are nearly all impregnated, and doing well. This will make the cost of the eggs not far from two dollars a thousand. This splendid success will make an impression upon the New England rivers, in which most of the fry will be deposited.

A New Variety of Cotton.

At the Cotton States Fair, held at Augusta, Ga., in November last, we saw with much interest a new variety of cotton exhibited by Dr. T. L. Anderson, of Washington, Ga. We were informed by Dr. Anderson, a very intelligent gentleman, that about five years ago he noticed in a field of cotton a single stalk of a habit of growth so different from the rest as to

attract his notice. The cotton plant ordinarily branches from near the base, with branches along the stem gradually diminishing in length, so that the plant when well developed is somewhat pyramidal in shape, with its diameter nearly equal to its height. Upon the plant discovered by Dr. Anderson the branches did not exceed a length of three inches, and the bolls were of unusual size. The seeds from this plant were carefully sown by themselves, and by continuously selecting the short-branched plants for propagation, the Doctor feels sure that he established a variety having this peculiarity. At all events, we saw a sufficient number of specimens to indicate that a large number of such plants had been raised, and if the short-branched habit is not already permanently fixed, there seems no reason why, with proper care in selection, it should not be. Besides the marked habit of the plant and the size of its bolls, the staple is, according to the testimony of good judges, of excellent length and quality, while the bolls ripen uniformly and early. This new cotton excited much interest among the cotton-growers present, as it combines several desirable qualities. By reason of its short branches, the plants can stand much closer than the ordinary kind, it can be allowed to stand at a distance of ten inches in the rows, and it is estimated that on account of this and the large size of the bolls, the yield upon rich land will be much greater than that of any kind now grown. Should the plants all grow like the specimens we saw, one of the greatest difficulties of picking by machinery will disappear. Where the plant grows in a pyramidal shape, the bolls are placed at such irregular distances from the main stem of the plant that it is hardly possible to invent a machine that will collect from all; while in Dr. Anderson's variety the bolls upon one side of the plant are in no case more than six inches distant from those upon the opposite side. We hope that future experience with this new cotton will sustain the hopes of its discoverer and introducer.

Artificial Manures.

As we discover how necessary it is for us to add to our resources for fertilizing our farms by the use of artificial manures, it becomes the more necessary to know how to avoid being defrauded by having worthless articles palmed off upon us. It is also more necessary to know that there are fraudulent so-called manures, that are not manures in any sense, but worthless stuff, mainly sand or water, offered at prices equal to the best fertilizers. It is on these artificial manures that we mainly depend for our necessary supply of phosphoric acid, an element that more than any other is most difficult to replace in the soil, and one that is carried off in large quantities by every valuable crop, as well as by milk and meat. It is not only a necessity for our soils, but a costly one; and when we pay \$60 for a ton of superphosphate, which we expect contains, and ought to contain, 150 lbs. of phosphoric acid, at least, in a soluble state, and find on examination that it is entirely deficient in this costly ingredient, as in fact it is of all value whatever, we not only are defrauded of our money, but are led to throw away vainly much labor and careful preparation of ground for crops which we fail to reap. Frauds in fertilizers are the basest of all frauds, and the most reprehensible. It is well that farmers should be on their guard against them, and buy only from responsible dealers, and with

a guarantee of quality and with a certificate of analysis attached to each package. When the manure is used, a sample of about a pound from each package should be retained with the certificate and guarantee, and if a suspicious failure of the manure should occur, the remedy may then be sought and restitution be enforced. In some of the States stringent laws for the protection of farmers are in force, as they should be everywhere. Their necessity is proved by the fact that the tabulated analyses of fertilizers sold in Vermont prepared for the report of the Vermont State Board of Agriculture, now before us, show that one of these so-called fertilizers had a value of \$16 per ton, another of only \$6, and some others had actually no real value at all; while genuine articles ranged from \$40 up to \$75 per ton.

An English Agricultural Libel Case.

A few months ago the Mark Lane Express contained a report of the Chemical Committee of the Royal Agricultural Society of England, in which some cases of so-called poisoning of cattle by adulterated linseed cake were referred to, and the public generally cautioned to avoid the use of such cake. This was construed by the manufacturers of the cake as a libel, and an action for damages was instituted by them against the Society. It was proved on the trial that the cake, which was called "Triangle Best Linseed Cake," was neither best linseed cake, nor in fact really linseed cake at all, but consisted of a mixture of various seeds of weeds, some innocent and some injurious, a large percentage of sesame cake, bran, and about 50 per cent only of linseed. The evidence also proved conclusively that the death of some valuable Short-horn cattle had been occasioned by this indigestible cake. But the law of libel in England confines the defendant in such a case as this very closely to the exact proof, literally and not constructively, of his statement from which the libel has grown. It seems that the Society were unable to show that the cattle were really *poisoned* by the cake, although there was no question that they died from eating it. Out of this small loophole the plaintiffs were able to escape with the very nominal damages of about \$50. The result of the trial was really a victory for the Society, although formally otherwise, for the cake manufacturers throughout England immediately changed their brands, and now no longer sell mixed and adulterated cake as "best linseed," "pure linseed," or "genuine;" but make use of those words in the sense in which ordinary purchasers would understand them. The judge, Mr. Justice Blackburn, in his summing up of the evidence, made this necessary by saying that "the calling any cakes linseed cakes, except those made from linseed either screened or as imported, was a commercial fraud." As the manufacture of oil-cake is greatly increasing in this country and its use for feed becoming continually greater, the above brief history becomes interesting to us.

Culture of Sugar-Beets.

It is a question whether the culture of tobacco now so extensively carried on in the Eastern States, could not be profitably replaced by the culture of sugar-beets for the manufacture of sugar, combined with the feeding of cattle for market. It is useless to speak of the fact, that the one article is a luxury and the others

are necessities of life, for farmers will raise what they make most money from, irrespective of anything but the profit concerned. But sugar and beef are staple articles of consumption, the market for which can not be overstocked for many years, if ever; whilst tobacco is a crop that requires costly preparation, is subject to many adverse contingencies before it can be marketed, and if in excess is salable only at reduced prices. The culture of root crops tends to an increased fertility of the soil, and in this way becomes profitable indirectly, as helping to produce better crops of other kinds that may follow. But in itself, the sugar-beet is a profitable crop. The value for sugar leaves a handsome profit, and the refuse pulp from each acre will furnish as much feed as two tons of hay. It is a *legitimate* crop, as being one that has a definite place in the rotation of true agriculture; while tobacco is otherwise, as sacrificing the resources of the farm, and having no place in any possible rotation or systematic agriculture. It is a *special* crop, and as such is legitimate only under circumstances that will prevent it from interfering with the regular business of the farm, or the production of crops that must necessarily depend on the internal resources of the farm for their culture. Under such limitation, there can be no objection to the culture of tobacco, but farmers should be cautioned against making it their dependence, lest they may lean upon a staff that may pierce the hand that rests upon it. The fable of the goose and the golden eggs is apropos to this matter.

The Chillingham Cattle.

In the extreme north-eastern part of England, in the county of Northumberland, is a small remnant of an extensive ancient forest which at one time stretched far northwards into Scotland. This piece of forest is called Chillingham Park. In it is Chillingham castle, one of the seats of an ancient noble family of England, the Earls of Tankerville. The park, as such, has been in existence for eight or ten centuries, and within its boundaries have been preserved during all that lapse of time a remnant of the ancient race of cattle which inhabited Europe even in that prehistoric time when the cities now submerged beneath the waters of the Swiss lakes were peopled. The scientific name given to these cattle, *Bos primigenius*, sufficiently explains their great antiquity. Of them none now remain but this herd at Chillingham, and a few other less important specimen herds in some other similar parks and inclosures. They are thus the oldest race of cattle now existing. They are not domesticated, and are purposely kept as wild as possible, so that they may furnish sport to their owner and his friends in hunting them. Notwithstanding, they are readily domesticated when kept apart from their semi-wild companions. These cattle are white in color, with the inside of the ears reddish-brown, eyes surrounded with a black ring, muzzles brown, hoofs black, and the horns white, tipped with black. The bulls have no dew-lap, and no mane but a short upright one about two inches in length. The very spirited engraving, drawn by Harrison Wier, which appears on our front page, and for which we are indebted to the London Field, represents the head of a seven-year-old bull recently killed by the Prince of Wales when visiting at Chillingham. The bull was the leader of the herd, and was considered as so fine a specimen that the head has been stuffed and mounted as a trophy. As might

be expected, these cattle are not good milkers, but their beef is said to be of very excellent quality. A curious fact in relation to them is that although the race is so ancient, and has been kept perfectly pure, yet occasionally a calf is born with red or brown ears, or mixed with brown or red on the body, or even entirely red or black. Such calves are destroyed, so that the herd may be kept uniform in color.

Using Crude Carbolic Acid.

L. D. Stowell, of Albany Co., N. Y., writes us that "crude carbolic acid has been sold quite extensively, and in some cases harm has resulted from the use of it. If you would give in the *American Agriculturist* directions for using it and the precautions necessary, you would confer a great favor on many of your readers."

We have used crude carbolic acid for several years, and find it exceedingly valuable on the farm. In applying it to animals it is necessary to exercise considerable caution. Some years ago the writer had a flock of Merino sheep that were affected with footrot. We put some crude carbolic acid about three inches deep in a water-tight plank trough, and put in the sheep, and let them stand in the acid a few minutes. It cured the footrot, but two or three of the sheep in struggling fell down into the acid. In ten or fifteen minutes afterwards, they exhibited symptoms of great suffering, and in less than an hour died. We skinned the sheep for the sake of the pelts, and found the carcass so impregnated with carbolic acid that the meat kept for months during the hottest weather without undergoing any change.

This is no argument against carbolic acid. It only proves that it must be used with care. For footrot in sheep it should be applied with a small brush directly to the hoof and between the divisions. We have used the crude acid undiluted in this way repeatedly without the slightest injury, and two or three applications to the *whole flock* will effect a perfect cure. We dress the feet of all our sheep and lambs twice a year with crude carbolic acid, simply as a preventive, and have not had the slightest symptoms of footrot or fouts since we adopted the practice. We can confidently recommend the plan to our readers.

As a dip for killing ticks on sheep, or to prevent or cure scab, we prefer to use carbolic soap, but we have several times used a weak solution of crude carbolic acid in warm water. We can not give definitely the proper proportion of acid to water, for the reason that the strength of the crude acid varies considerably. It can be safely used strong enough to kill many of the ticks instantly, and make all of them very sick. In our own case we judge of its strength by dipping the finger into it and applying it to the tongue. It should be strong enough to sting the tongue for a few seconds, and then pass off without leaving any unpleasant sensations. Half a pint of crude acid in a twelve-quart pail of water will probably be found strong enough to instantly kill the ticks. And this would be about the proportion we should use where, as at this season of the year, we poured the liquid on to the sheep instead of dipping them. For dipping, we should not use quite as much at first—adding a little more acid after a few sheep had been dipped. The most important point is to be very careful to *thoroughly mix the acid with the water*. Unless this is done with great care, the acid will swim on the surface of the water, or in small globules in the

water, and the first sheep that is dipped will get more than its due proportion.

For lice on pigs, a good plan is to rub the pigs all over with soft-soap, and then wash them with carbolic-acid water, as strong or a little stronger than above recommended for sheep.

For lice on cattle, the same method may be adopted, with or without the soap. We should apply the carbolic-acid water with a sponge, and see that every hair and every part of the skin was wet.

For lice on dogs, the dog may be either dipped all over, except his nose, eyes, and ears, or washed first with soap and then with carbolic-acid water.

If our hens were affected with lice, we should be inclined to dip them also, though we have never done so, owing to the fact that we use carbolic acid freely in the hen-house, sprinkling a strong solution of it about the floors, nests, etc., and washing the roosts with the strong crude acid applied with a paint-brush, and have never, since we adopted this practice, been troubled with lice.

We think this crude carbolic acid will preserve wood. At any rate, it is a great purifier, and we use it freely about our pig-pens, washing out the troughs occasionally with a solution of it, and sprinkling it on the plank floors, rubbing it on the posts, and mixing it with lime-wash for the walls.

For disinfecting purposes, we think it valuable principally in arresting fermentation, decomposition, and putrefaction, and thus preventing the formation of deleterious gases rather than in neutralizing these gases, or rendering them innocuous after they are escaping. Still, we have no doubt, the vapor of carbolic acid will destroy any poisonous organized matter that may be floating in the atmosphere in the vicinity of sewers, ill-ventilated cellars, etc., etc.

There is no danger of using it for this purpose, so far as the health of man or animals is concerned, though to many the smell is quite disagreeable. A word of caution, however, is necessary. We have known carbolic acid sprinkled in a cellar where milk was kept, and all the milk and cream then in the cellar was not only tainted and spoiled, but the vapor arising from the carbolic acid so impregnated the cellar that no milk could be put in it for several days, and even a crock of butter, although covered, was so affected that the upper portion could not be eaten. The truth is, that for all apartments, fresh air and plenty of water, with scrupulous cleanliness, are far better than carbolic acid or any other disinfectant.

IS PEA-STRAW GOOD FODDER?—A correspondent says he has not found pea-straw as valuable for fodder as good oat and wheat straw.—Very likely. And yet good pea-straw may be so cured and fed, as to be worth far more than any other straw, unless it is choice bean-straw. It is more nitrogenous than wheat, oat, barley, or rye straw, and should be fed, to get out its full value, in connection with a small quantity of corn. Sheep that have a pound of corn each per day will fatten more rapidly on pea-straw than on wheat or oat straw. The better plan is to let them have all they will eat of both pea and wheat straw—say pea-straw morning and noon, and wheat or oat straw at night. But we apprehend the trouble with our correspondent is not so much in the way of feeding, as in the method of cutting, curing, and preserving the pea-straw. If the peas were allowed to grow till dead-ripe, and after cutting were al-

lowed to remain in heaps in the field day after day without turning, and were exposed to rains and dews until nearly all the soluble matter was decomposed or washed out of the straw, and half the leaves were knocked off of them before they left the field, and they were stacked in a damp condition, it is not difficult to understand why "the sheep and the chemist do not tell the same story" in regard to the value of the straw. On our own farm we have found pea-straw from a luxuriant crop of peas, cured without rain, nearly as valuable as clover-hay.

Ogden Farm Papers.—No. 36.

I write from St. Malo, on the coast of Brittany, early in December. I have not yet had a sufficient opportunity to study a single detail of European agriculture to express a definite opinion concerning it, but it is beginning to suggest itself to my mind, that—in agriculture, as well as in a good many other branches of industry—an American *can not* "dive deeper, stay under longer, and come up drier" than any one else in the world. I may have been misled by appearances, but so far as I have been able to judge from a rapid run through England, Belgium, Prussia, Baden, Württemberg, Bavaria, the Tyrol, Northern Italy, and France, there is no day's journey along the whole route to which it would not pay an American farmer to devote at least a month. I do not doubt that the reverse of the proposition is true: there are few farmers along the line of my journey who would not find in America very much that it would be of the utmost consequence for them to adopt. In the matter of implements we are far ahead of most of the farmers of the Continent, and we have been forced by necessity to learn how to get more value out of the labor of a man than they do here—as indeed we must, for the man costs us from three to five times as much. But when it comes to the question of getting value out of the *land*, we are nowhere. The best of us waste on every hundred acres enough ground to support a family in Germany, and enough manure to support two families. Ours is an agriculture of rich soil—even where our land is poor we have not yet modified the system that answered when it was rich—and theirs of poor soil. They can not draw on their land (as an Illinois farmer can) for a fair crop on every acre which they simply plow and plant. Their land has passed that point—as much of ours has done, and as the rest is fast doing. It no longer contains even the remnants of the "inexhaustible fertility" which invited the convent-building monks, as our prairies still invite the wholesale wheat and corn growers. It has long since been relegated to its true position of "an implement of agriculture," or, if the term be more appropriate, of the farmer's laboratory, or even his bank. It long ago ceased to be his mine. He can make it work for him much as the digestive apparatus of his cows does; its apparatus, if he rightly understands it, is ever ready to turn his crude chemicals into golden crops; its vaults are open to receive his deposits of manure or of labor, and quick to pay them out whenever he presents his check in the proper form. But the day is gone when he can reap where he has not sown, and take meal from the mill to which he has carried no grist.

It is just this fact that makes the lessons of the Old World the most important of all for us to study. There is no danger that we shall yield any point in which we are superior to them, and we can only hope for benefit from

the adoption into our system of economies which they have learned in the dear and tedious school of experience. If we could combine what is good in the two systems (so far as our costly labor will allow) we should develop an agriculture far beyond what we can hope to establish by years of costly experience, and working out our own agricultural salvation.

The one thing that has impressed me everywhere is the very close economy that is practiced—economy of land, of manure, of food, of everything in fact but labor, which is almost a drug in this teeming land. The first half-hour's railroading from Liverpool to Chester is through an almost uninterrupted park. Every foot of the company's domain is made to produce something of value—either beauty about the frequent stations, or food on the slopes of the cuts and embankments between them. Nothing is wasted; grass, roots, vines, flowers, shrubs, something that can give pleasure or supply food, is made to take possession of land which with us is devoted to mullein and goose-grass, and dust and hideous ugliness. In London, the cleanly and the magnificent, the metropolis of the world, men and boys with dust-pans and brushes sweep up and save every ounce of manure that falls on the more crowded streets. On the banks of the lovely Moselle, where one hundred and fifty miles of vineyards climb to the tops of the legend-clad hills, every spot where the sun can be caught is saved and nursed like a child. In hundreds of cases I saw a little nook of a terrace high, high up the mountain-side, that was only kept from destruction by a solid cemented wall which was greater in area than that of the land it sustained, and there would be other little terraces above and others below. If there were room for only a half-dozen vines—growing like beans on their little poles—they were supported in the same substantial way as where a hundred or a thousand could be planted. The rule seems to be, "If you have a good thing, no matter how small, make the most of it," and its application might be traced over every acre of tolerable land that I have seen, away up among the Alps, or where the sea can be kept out only with dykes and pumps, and it is the value of this rule which we most need to learn.

Of course our circumstances are not the same. Our system grew up under the influence of cheap land and dear labor, and theirs under the opposite; but it should be remembered that in our Eastern States land is fast increasing in value, and that we are making our labor every year more effective by the aid of machinery. Furthermore, we formerly had a soil so rich that the most careless treatment sufficed for the production of good crops. With most of us this condition has passed. The land has grown poor, and we work over large areas for small returns. We need a closer economy of labor (more thorough cultivation) and more manure on less land. That is, we need to follow more nearly the customs in vogue here, making up for the difference in the price of labor by the use of our more efficient machinery, and of the further fact that in America a man does more work in a day than in Europe—he is quicker and stronger, because living in a better climate and eating better food. Instead of a gang of women, fed on bread and cheese, plodding slowly up a mountain-side with baskets of manure on their backs, we have one meat-fed man with a grain-fed team carrying more in a day at a less aggregate cost. So far as I can see, the circumstances are all in our favor. All we

need is to couple our efficiency with their economy, and we shall develop, even on our worn-out soils, a better system of farming than has been attained here—except in England, where I suspect that they are in nearly all respects ahead of us.

To-morrow I start for the island of Jersey, where I shall try to learn something that will be of practical value to my readers, and then I shall give some time to the better farming of England and Holland.

I wish that some of my "solid-color and full-black-points" friends could have been with me in southern Germany and northern Italy. I saw there thousands of oxen and cows of such coloring as would have delighted their eyes. They were the most uniform lot I ever saw, steel-gray in color, with black switches and black feet, and with the real "Jersey" fillet of mealy gray around their muzzles. Put on the markets of New York and Philadelphia they would have brought round prices as Jersey cattle; yet as dairy animals they are as poor as any scrub in New England, and clearly prove that this fancy coloring is not necessarily an indication of practical value. It does not prove that the coloring is an indication of bad quality; this is fully accounted for by the fact that the giving of milk is only an incident of their duties. First and foremost they are beasts of burden. Many a farmer in Europe does all his plowing and road-teaming with his cows, working singly in thills, or in pairs to the pole, as the case may be, and their development shows the effect of such treatment. They are heavy-shouldered and light-quartered, and their little udders give but a scanty and brief flow of milk. A peasant woman near the Moselle who showed me her dairy, said her cows gave her but little butter, as they had to work them like horses. The butter, too, was of poor quality when compared with that from cows kept for the dairy alone.

I was sorry not to be able to investigate the irrigation in northern Italy. It is evidently a most completely engineered system, and it comprises the whole of the country that lies within reach of the streams flowing from the mountains. It was easy to see, even from the car-windows, that it had developed a most prosperous agriculture throughout the whole land. Large houses and barns and a heavy working force of men and teams seemed to be the rule, and the deep and thorough cultivation of the land surprised me. The ground was evidently being prepared for the spring planting, and on every farm the work was being done by teams of from 10 to 14 oxen, and from 15 to 25 men beside the drivers. The plows were very large, though of rude construction, and they were drawn to a great depth. In each furrow there followed the gang of men with spades, who dug out and threw on to the top of the turned land a good spit of the subsoil. If such general prosperity would in our case follow the adoption of this deep cultivation and a complete system of irrigation, we should lose no time in turning our attention to it. With our improved plows, we could dispense with one half the team and with all the spading. So far as I could judge, all the manure used is applied to the grass land, where it develops a richness of sod that suffices for the production of rousing crops where it is plowed under for grain, though the growth of both the grain and the grass is immensely aided by the fertilizing flow of water from the hills.

Watering Stock in Winter.

Much thoughtless cruelty is inflicted on our animals, which needs only to be exposed to be prevented. Farmers, and especially their boys who are not yet old enough, or rather have not yet learned enough, to think of consequences, often put their stock in the unpleasant position depicted by our artist in the engraving subjoined. He shows a couple of boys who have been sent to water the stock on a cold February morning. The creek is frozen over. The ice is smooth and slippery. The boys have cut a hole in the ice, and a thirsty cow has ventured on it to reach the water. Her position is a painful one to her, but an amusing one to the boys, who do not think of the fact that in a month

or two there may be trouble when the cow is expected to have a calf, and the milk may be bloody, or she may have a caked bag, and the wonder will be why she should be thus troubled. Possibly, many who have written to us for advice under these or similar circumstances, and who could not imagine any cause for the trouble, may now remember some such occurrence as this. They will then see a sufficient cause for it that might have been prevented had they known the possible result. The cows on the bank, who are sympathizing with their companion, will go home thirsty rather than venture where she is; and so will the sheep, waiting patiently and anxiously for a drink, which they badly need, but are afraid to trust themselves on the ice to procure. While they are waiting, shivering on the brink, it is more than likely that some may get injured by a vicious cow, and so this bad management results in evil in many ways. On the other hand, where there is a well and pump at the barn, and a water-trough, the stock will be spared all this suffering, and all the injury resulting from drinking ice-cold water or going without any at all. If there is no other way to water stock but at a frozen pond or creek, a trough should be provided there, and the water be dipped up into it with a pail, so that the animals may neither suffer from thirst nor from injuries occasioned

by venturing on smooth ice. Water that is at the temperature of melting ice should not be given to animals, and especially to milch-cows, if it can be avoided. Much of the falling off of milk ascribed to cold weather is properly due to giving the cows copious draughts of very cold

or more of diseases which affect the limbs and feet of horses are almost wholly incurable under the average circumstances of the farmer to whom competent professional advice in nearly all cases is unattainable, yet it is equally true that with proper care and cautious treatment

all these diseases may be prevented. The foot and leg of a horse is a very complicated piece of machinery, full of the most delicate membranes, cords, hinges, springs, and cushions; each of which is exactly fitted not only to do certain direct work in enabling the horse to move, but in supporting the others, and in protecting it from injury. There are also secretions of joint-oil, *synovia*, a viscid fluid, the office of which is to lubricate the joints, and allow an easy motion of the head of one bone on that



WATERING CATTLE THROUGH THE ICE.

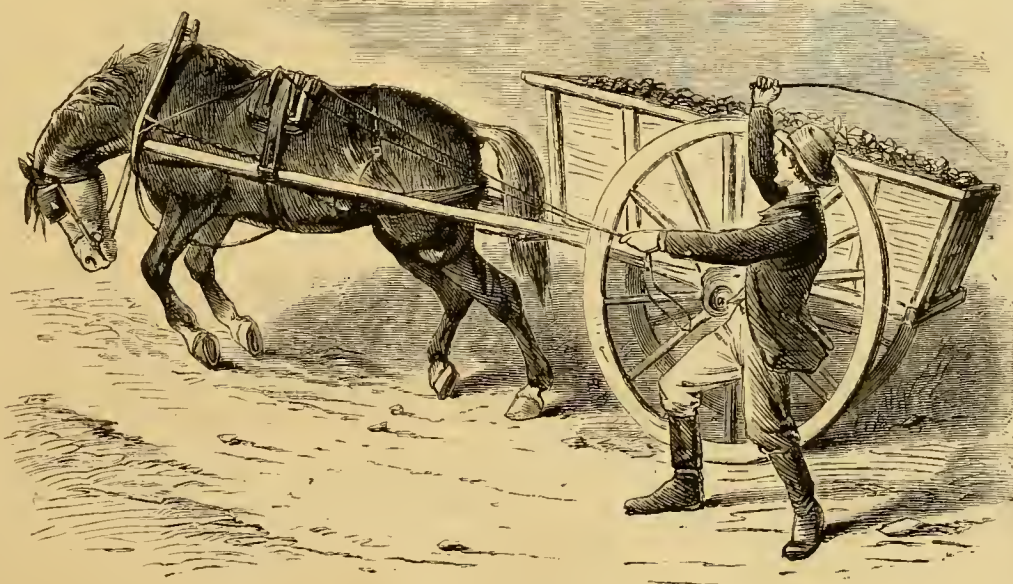
water. In some milk dairies there is provision made for warming the water drank by animals during cold weather.

Diseases in Horses' Feet and Legs.

Readers of the *American Agriculturist* will have doubtless observed the numerous applications made for advice as to the treatment of injuries and diseases of the feet and limbs of horses. Continually, month after month, there are dozens of inquiries of this nature. While

of another. The foot, so far from being what it is generally supposed, a lump of insensible horn that may be pounded on the stones, or rasped, cut, or trimmed into or out of shape, or scorched or burned, is, on the contrary, a bundle of the most sensitive bones and sinews, incased only in the insensible outside crust of the hoof and sole, and connected therewith by equally sensitive laminae or leaves, by which the whole is bound together. To preserve this delicate bundle of bones and sinews from shock and consequent injury, there is provided a soft elastic

cushion, the frog. Now, when we see a wild pony on the plains, or a young colt gamboling on the soft elastic turf of a smooth meadow, we can observe how beautifully all these parts act together, and how graceful and elastic a step they enable the animal to exhibit, and, remembering the exact balance of the parts wonderfully provided by nature, can understand how injury is avoided to the most sensitive of them. But when we take the horse and cut away the frog, removing the safeguard there pro-



A HEAVY LOAD UP HILL.

vided for the sole of the foot, and pare away the crust, and fasten on a shoe of three or four pounds' weight to each foot, and, in addition to carrying his own weight, compel him to draw heavy loads over roads paved with rough cobble-stones or sharp fragments of broken rock or loose pieces which yield and give way beneath

we are always ready and in fact desirous of assisting our correspondents with advice in these cases, so many of them are utterly hopeless of remedy from their very nature, or impossible of relief in the way desired, that we can only make them texts whereon to found lessons of caution and prevention in the future. While the score

his tread, causing sudden jars and strains and severe shocks, we forget that he is no longer in his natural position, and needs the closest care and the most intelligent management to preserve him from injury. And this is precisely what in nine cases out of ten he does not get. On the contrary, so long as he can stand beneath a load it is piled on. While he can drag one leg after another on the road he is urged by whip and spur. His feet are cut and carved to suit the taste of a man who never examined its structure. Roads are constructed on any system rather than one adapted to suit the valuable animals condemned to travel on them; and the hills are not made level nor the rough places made plain for him. His stable-floors are usually made so as to compel him to stand in an unnatural and uneasy position, and to weaken or to strain his limbs. And finally, although many other instances are omitted from want of space to mention them, the most thoughtless cruelty is often exercised in compelling him to over-work when not physically matured.

Our artist has pictured a scene of the commonest occurrence. A horse, loaded to its utmost capacity on a level road, has to mount a hill. He has not only to draw it upon the ground, but he is made to elevate the whole weight of himself, the load, and the wagon through a space equal to the elevation of the hill. In addition, the ground is less favorably placed for his foothold. Without merey the whip is used to stimulate the willing but wearied beast. This over-exertion may not injure his digestive powers nor his circulating system. But mechanically the results may be the most serious. Bruises of the sole may result in canker, quittor, navicular disease, or thrush; jars and shocks produce sprains, knuckling, ring-bone, shoulder lameness, inflammation of the joint membranes, spavins of all kinds, tumors, windgalls, and almost every other possible blemish or disease of the limbs. These bruises, jars, and shocks almost wholly result from thoughtlessly putting a horse in the position shown in the engraving on the preceding page. It is not often that farmers' horses are injured in any other manner than in some easily preventible one, and if sufficient care were used to prevent injury there would be but little trouble from any of the diseases here pointed out.

Walks and Talks on the Farm.—No. 110.

Mr. John S. Bowles, of Ohio, writes: "I am slightly surprised at your advice to farmers in your 'Walks and Talks' for December. You seem to think that no matter how badly farmers prosper, it is wisdom for them to keep on farming." I did not say so. "According to the law of supply and demand," Mr. B. continues, "there are now *too many farmers* in the United States. Too much produce is raised, for it is certainly too low to pay for raising at the price we have to pay for laborers." It is undoubtedly true that farmers are not now getting a fair price for their products. But what are you going to do about it? The same thing sometimes happens to other producers. Manufacturers sometimes glut the market with their goods and have to sell at a loss. If more coal is dug than the market requires, it is sometimes sold below the cost of production. And so with petroleum, iron, and every other article of trade and commerce. We can not all be getting rich at the same time. The world, as a world, merely gets a living. If you get a better living than your

neighbor it is because you work harder or to *better advantage*. Of course, this statement must be taken in a very broad sense. There seem to be a great many local and temporary exceptions, but they are only temporary. If you think you can work to better advantage in some other calling than farming, you ought to do so. But be careful you do not make a mistake.

Mr. B. says very truly that there is such a demand for labor in the mechanic arts, manufactures, railroads, etc., that farmers can not expect to get men for less than they are now paying, and yet he is sure they can not afford to pay present wages and sell their produce at present prices. "The only thing I can think of," he says, "for farmers to do, is to sell out at some figure and go into some other business." Very well; if Mr. B. thinks so, it is not for me to interfere. If he is sure he can do better, all things considered, in some other occupation, by all means sell the farm. It will not be any the worse for those of us who still keep on farming.

Mr. B. further says: "Most farmers whose farms are worth \$10,000 or \$15,000, could make more money to put it in U. S. bonds and sit still on their heels, than they now make off their farms working 12 to 14 hours per day." Again I say, let Mr. B. try it!

But even this does not suit Mr. B. He says: "Some farmers, like myself, can not very well afford to stop farming." [Then I would advise Mr. B. not to stop farming.] "We can not always sell our farms when we want to, and we do not understand any other business. We have thrown away our lives learning to farm instead of learning trades. Now it is too late to learn. We must drag out our lives saving what other people waste, eating what we can not sell, and working while other people sleep. But with young men the case is different. Let them learn any kind of trade, but do not crowd our already overdone business." I think Mr. B. has got dyspepsia. And besides, that terrible scourge "hog-cholera" has recently carried off about one hundred of his pigs and hogs. I do not wonder he takes somber views of farming. We all have our trials, losses, and disappointments. They are not confined to the farm. There are "black Fridays" in Wall street, and fires in Chicago and Boston. There are times when most thinking men feel that they have "wasted their lives." But a good man's life is never wasted.

The farmers of the United States have *not* wasted their lives in the past, are not now wasting them, and will not waste them in the future. Some years ago I was traveling with a lady in Connecticut. Looking out of the car windows I remarked, "I don't see how a man can make a living on such a farm." The remark aroused her New England pride, and she replied, "And yet on these sterile hill-sides men have brought up large families, and *sent their sons to college*." Did these farmers waste their lives? Fifty years ago where I am now writing was a wilderness. To-day the sun does not shine on a spot of earth where the inhabitants as a whole and all things considered enjoy greater comforts and blessings than in this same "Genesee country." Did the men who pushed out into this new country, cleared the forest, fenced their land, built roads, erected school-houses and churches, planted orchards, and made happy homes for themselves and their children waste their lives—and are they now wasting them? This nation, which is the wonder of the world, owes much of its greatness and grandeur to the farmers. Whatever may be said of the hardships, trials, privations, and loneliness of

American farm-life, no one will deny that a large proportion of our best men and most agreeable and useful women are the sons and daughters of farmers.

As to whether a young man should learn a trade or learn farming is a matter of taste. Mr. B. says farming is overcrowded. I imagine most of those engaged in those occupations which he thinks so much more agreeable and profitable than farming would say the same thing of their business.

But I have not time to discuss this subject. I do not think there are too many farmers in the United States, or that we are producing too much. We happen to have had an extraordinary crop of corn for two or three years in succession, and prices have fallen below the cost of production. A few years ago pigs were scarce, and the consequent high price of pork stimulated an excessive production, and the price is now as much below as it was formerly above the average. This low price, however, will be a great benefit to us in the end, as it is introducing immense quantities of American pork into foreign markets. It will be with our pork and bacon as it was with our cheese. It will be bought, at first, because of its low price, and afterwards it will be bought because of its intrinsic merit. We can compete with the English farmers in producing pork to far greater advantage than we can compete with them in the production of cheese. Our cheap corn should give us the monopoly of the pork market. We can "pack fifteen bushels of corn into a barrel," and transport it at a comparatively cheap rate to any part of the world.

I can not give all my reasons for the faith that is in me, but I *feel* as though the prospects of American farmers in the near future, were never so good as at the present time. Do not talk to me or to any other man capable of doing a good day's work about selling the farm, and investing the money in U. S. bonds, and then "sit on your heels and live on the interest." If farmers acted on this advice there would soon be no interest to live on. Our bonds are good because of the industry, enterprise, and intelligence of our farmers. Let them stop work for even a few months and the country would be hopelessly bankrupt. There is no honest method of getting money except by work—and those who get it dishonestly often have to work harder for it than those who get it honestly.

A correspondent at Mt. Pleasant, Iowa, writes: "I am a reader of the *American Agriculturist* and am much interested in your Walks and Talks; but your land and climate are so different from ours that it would be difficult in some respects to follow your directions. But in regard to live-stock matters, you have the 'right worm in your cake.'" The details of farm practice differ very materially in different sections, according to soil and climate; and, for matter of that, they differ on different farms in the same town. And it often happens that there are fields on the same farm that require very different treatment. The truth is, a good agricultural paper discusses principles, and illustrates them by practical examples, but it leaves their application to the good judgment of the farmer. True principles are true everywhere. Their application differs according to soil, climate, and circumstances. I take two or three English agricultural journals, and also some published in Scotland, Ireland, and France—and I would

take the German papers also, if I could read them. There is scarcely a direction in any one of these papers that I can adopt on my own farm, but yet I read them with interest and profit. I get new ideas or have old ones confirmed. Then I read regularly the Country Gentleman, the New England Farmer, the Weekly Tribune, the Journal of the N. Y. State Agricultural Society, the Practical Farmer, the Western Rural, the National Live-Stock Journal, and the Prairie Farmer, and I get something good out of all of them. But after all, a farmer must do his own thinking and his own work. Papers will help him in proportion as they help him to think correctly and stimulate him to exertion.

Another farmer at Decorah, Iowa, writes: "I have been a reader of the *American Agriculturist* for many years, and am delighted with your Walks and Talks. You seem to complain of hard times down there, but if I was to write my Walks and Talks on the farm you would wonder how we live out here. Hired help and implements cost you no more than ours, and yet you get double the price for your produce. You get from 6 to 7 cents for your beef, and here we get from 2c. to 2½—and it must be very fat to bring 2½ cents per lb. Our corn is worth from 15 to 20 cents per bushel, and we had to pay 5 cents per bushel for husking. Oats 15 cents per bushel, and we paid 5 cents for thrashing, besides a dollar a day and board for all hands. Last harvest many farmers had to pay \$4 per day for men to bind their wheat. Wheat is now worth 85 to 95 cents per bushel. I killed a nice lot of chickens for Thanksgiving, and all I could get was 15 cents apiece for them dressed—and most of them weighed over 4 lbs. each. Butter 10 to 12½ cents per lb. Wild hay \$6 to \$8, and tame hay \$8 to \$10 per ton. Straw \$1.50 per load after hauling it 6 miles. And yet the towns-people in Decorah think that we are getting rich! And I think myself that taking them as a body, farmers here are doing better than we have done for the last two or three years." I am very glad to hear it. I suppose the land is rich and the crops easily raised, and if a farmer can get 95 cents a bushel for wheat and has a good crop he can afford to eat his four-lb. chickens for his own Thanksgiving dinner, and can have them liberally basted with 10-cent butter. If such a man is out of debt he has little to fear. He can live pretty much on the products of his own labor and can afford to wait. In the mean time, any improvement he can make upon his farm is money safely invested—money that he earns day by day, and which will pay a big interest by and by.

This is the true policy in times like these. Improve your land. Live economically—that is, live well and work hard. Wait and work. Keep up your courage. Things soon find their level. A man that can work need not fear hard times. To him times will soon be better. To the lazy and shiftless times are always hard—always will be and always should be. When I see a man who has good health, good appetite, good digestion, and no inclination to work, I feel as though I would like to shake him, or serve him as you would a lazy horse—put him on a tread-power and then take the brake off.

There are a good many people who seem to think that the bottom has tumbled out of farming. They forget that forty millions of active, industrious, well-to-do people must have and will have plenty to eat. And as long as people

eat there will be a demand for everything the farmer can raise.

What I have to consider individually as a farmer is, How can I best compete with my brother farmer? How can I raise wheat, corn, potatoes, beef, pork, mutton, cheese, butter, wool, etc., etc., as cheap as he can? Or how can I raise a better article? I think we are talking too much about speculators, and middlemen, and combinations. We had better devote more thought to the improvement of our farms and stock. Before the papers have got through discussing the best means of getting ten-cent corn to market, we may have a poor crop, and there will be no more ten-cent corn for many years. It may be worth 50c., 75c., or a dollar a bushel where it is now worth ten cents. And then what will you wish you had done? Hoarded the corn? Not necessarily. That might have been impossible. But you will wish that you had improved your land—that you had made it cleaner and richer, and got it into high condition. When prices are high, it is the good farmers who make money. Those who have poor crops and little to sell are benefited but little, if any, by the high prices. Thousands of farmers went through the high-priced war-times without making anything. What they sold brought double the money, but they had to pay double for what they bought, and they bought as much as they sold. It was the farmer who had a surplus over his wants that made money. The same thing will happen again. And he is the wise man who gets ready for it. Farming is slow work. You can not make your land rich and clean in a year. And recollect that until this is done there is no possible chance for making much money by farming. It would be a sad thing for the country should a farmer be able to make money by raising crops of wheat that were half weeds, and that did not yield 10 bushels per acre. I should be very sorry to see the time when a crop of 50 bushels of potatoes per acre paid a handsome profit, or when half-starved, neglected scrub animals pay for their keep. No country prospers when good farmers are losing money, and it prospers even still less when poor farmers can extort prices high enough to support their wretched system of agriculture.

"What would you have farmers do?" asked the Deacon in a tone that said, "I rather think I have got you there."

I can tell what I would do in your case, Deacon, I replied, with your farm and your well-filled purse:

1st. I would drain the low land.

2d. I would kill the weeds. I would make a business of it. I would raise crops in the mean time, but the real aim of all my operations for three or four years should be to kill weeds.

3d. Draining and killing weeds would develop much plant-food now lying latent in the soil. These means alone would nearly double the crops. These double crops would double the size of the manure heap, even though you sold double what you do now. But I would, for a few years at least, sell nothing but wheat, clover-seed, apples, and other fruit, and possibly, when the price was high, timothy hay and barley, and buy bran and oil-cake with the money when these articles were cheap.

4th. I would raise as much clover as possible on the upland, and occasionally a crop of oats and peas on the drained lowland.

This plan carried out for a few years would make the farm rich. I say nothing about feed-

ing stock, for the reason that there is a sad confusion of ideas on this subject. So far as enriching the land is concerned, it will make no practical difference what you do with the clover, corn, corn-stalks, oats and peas, straw, hay, etc., provided they are all retained on the farm, and returned without loss to the land. Feeding animals is a mere question of using these crops to the best advantage.

Of course I should, in the Deacon's case, keep a large stock—all that I could raise food enough to feed well, and I would rarely let a team come back empty from the city. I would bring back a load of bran.

But will it pay? Perhaps not at present prices. But even now the profits would be much larger than to raise, as we do at present, a full crop of weeds and half a crop of grain. The present system does not pay at all. If there is an apparent profit, it is obtained at the expense of "condition" in the land. It is merely getting interest at the expense of the principal. The plan I propose would pay a fair interest, and add materially every year to the principal.

F. R. Adams, of Wisconsin, sends me the weight of some of his grade Essex pigs. They are all good. One at 4½ months old weighs 80 lbs. He has 32 of these grade pigs from four sows, all with their first litter. Twelve of these he is fattening, that were born in August, and in January "they will dress sure 80 lbs. each." He asks, "How is this for pigs that do not get cooked food?" Good enough, and I am glad the attention of farmers is turned to this matter.

I think it will pay to raise pigs in August and September, and sell them in December and January for fresh pork. I have advocated this course for some time, but I feared that at first there would not be a demand for such small pigs. In England, immense numbers of pigs that dress from 40 to 60 lbs. are sold at high prices for "jointers." I think the same will be true here when the article is better known. Last week I took to the city a load of heavy dressed hogs, and got 5½ cents per lb. for them. At the same time, I took down half-a-dozen little pigs that dressed about 35 lbs. each, to distribute as presents to some friends. We drove on to Front street, for the purpose of selling the large hogs, and as soon as these little pigs were seen, the wagon was surrounded with people wanting to buy them. I could, apparently, have disposed of them at almost any price I might have asked. Here we can not afford to fatten large pigs at 5½ cents per pound, but I feel certain that we could make a fair profit in raising these little ones. We want good-sized common or grade sows that are good breeders and sucklers, and cross them with a small-boned, high-bred boar of a breed that matures early. A few such sows can be kept on a farm at small cost, living principally on what they pick up. The little ones would eat very little except what they got from the sow until two months old, and for the next six weeks would gain more rapidly, in proportion to the food consumed, than at any older age. If we can get what such pigs are worth, there is money in the business.

Stock Ponds.

The time when farmers could grow wheat and corn year after year, and the keeping of stock was but a secondary affair, has gone, never to return. Now and henceforth stock must be the first consideration of the American farmer. Not only is it a social necessity that beef and

mutton, butter and cheese, wool and leather, must be provided to meet an urgent necessity—for "man liveth not by bread alone"—but the keeping of a certain amount of stock is, in the greater portion of the country, indispensable to the raising of any crop whatever from the soil. Stock is the main source of our fertilizer, and must be for all time, and manure is the actual life-blood of the farm. The more stock, the more manure; the more manure, the more grass, roots, and grain; and then comes the more stock again. This is the path in which the farmer rotates, and the beginning and the end of it is stock. Therefore, whatever tends to restrain the increase or the profitable development of stock on our farms is injurious and must be overcome. One of the greatest restraints to the increase of stock is found in the want of water. From our observations the want of a plentiful supply of water creates more inconvenience to a vast number of farmers than all the labor needed to supply food. There are hundreds of farmers who are obliged every summer to drive their cattle daily over roads many inches deep with choking dust, a distance of several miles, to water. On their return the best part of a day has been lost and the cattle have come back as thirsty as when they were started on their journey. And yet at other seasons the country has been a perfect quagmire of mud and everything has been drenched with water. Every hollow has been a pond, every gully a torrent,

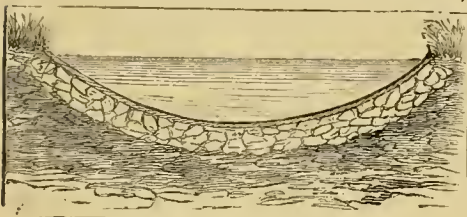


Fig. 1.—BOTTOM OF POND.

and every drain a stream. Had some method been adopted to save the superabundance of water, there would have been no dearth in the summer. But all this plentiful supply runs off, the creeks and rivers are swollen, and in a few weeks the dry time comes. Then springs are dry, wells either give out entirely or yield a scant supply that is husbanded with care to serve domestic purposes, and the stock suffers. Then steers and calves go abegging for pur-

spell. A gentle hollow in a field to which the surface water flows in the wet season may be dug out several feet in depth, the clay bottom puddled or cemented, and thousands of barrels be saved, with no expense but that of the first



Fig. 3.—PONDS FORMED BY DAMMING.

cost of preparing the ground. There are hundreds of such hollows that might be puddled and made water-proof by merely feeding stock-hogs in them during one fall or winter. If several feeding troughs were placed in them and a score or two of hogs kept trampling the clay, it would soon be rendered able to hold water. Or the bottom might be paved with cobble-stone or brick; this, covered with twelve inches of tough clay well rammed down in two separate layers, and an inch in thickness of hydraulic cement laid over that, would make a permanent pond. If some shade-trees were planted around, the water would be kept cooler and less evaporation would take place. We give in fig. 1 a section of the bottom of such a pond, and in fig. 2 there is represented a method by which a succession of such ponds might be arranged where the formation of the ground is favorable. The overflow of one pond passes by a paved sluice into another situated just below it, and that again may be made to connect with

the dam or wall should be built. If of clay, it should be well rammed down, and strengthened with stakes or posts driven along the center. If of brick or stone, water-lime should be used for the mortar in place of ordinary lime. The walls should be curved inward, to resist the pressure. A succession of these walls might be built one below the other at such distances that

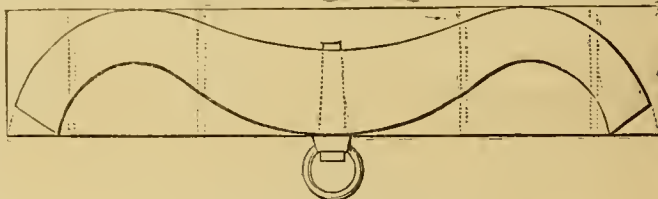


Fig. 1.—SHAPING AN OX-YOKE.

the water will be backed up by the lower one to the foot of the wall above. Fig. 3 shows how these walls should be arranged. Many streams might be dammed at joint expense by co-operation of several neighbors, and a sufficient supply to last a whole summer be thus cheaply gained. In other cases it would well pay any person owning such a privilege to thus utilize it and rent the water to his less fortunate neighbors. But it is certain that the question of an unfilling water-supply must be met and solved very soon, or the capacity of large tracts of country now subject to drouths each summer and fall will continue to be curtailed, and the profits of the farmers very much decreased.

How to Make an Ox-Yoke.

Gilbert J. Green, of North Carolina, sends us drawings of a pattern for an ox-yoke which he says has taken premiums wherever exhibited, as the best model. To make this yoke it is necessary to have a stick of light and strong timber, such as butternut, walnut, sycamore, basswood, soft maple, or wild-cherry, each of which is excellent material. The size of the stick necessary is 10x16 inches, and five feet long. This should be sawed in two, cutting out two inches of the heart, making two pieces 10x7. One side and edge of the piece should be dressed square; the center found, the first bow-hole is then bored 12 inches from this center, and the second bow-hole 12 inches from the first. To make the holes accurate they should be marked,

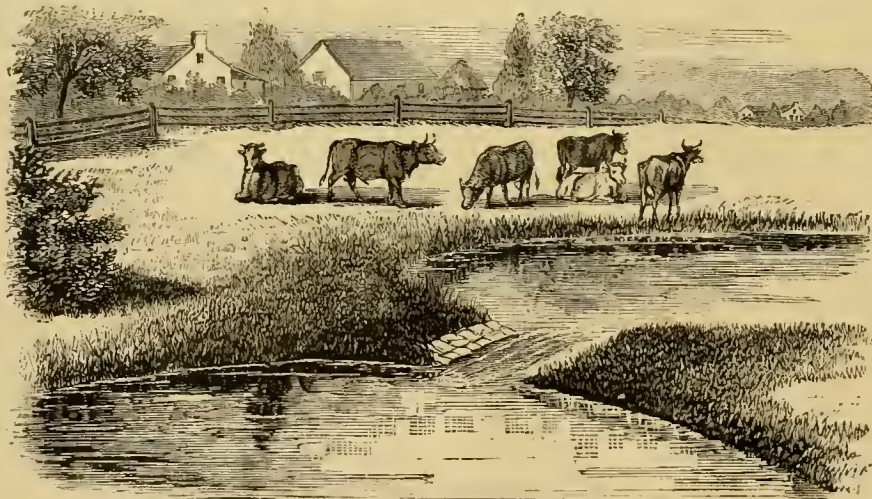


Fig. 2.—A SUCCESSION OF PONDS.

chasers, and a foresighted man who has cisterns or ponds can buy up the stock of his less careful neighbors for next to nothing. And yet there are few farms that have not facilities for storing up plenty of water against a dry

another still further below. Then again there are shallow gullies on many farms across which retaining walls of brick, stone, or cement blocks, or even earthen dams, might be thrown, which would serve to store up very large sup-

and bored from each side, meeting in the center. The auger should be two inches diameter. After the holes are bored, they should be burned with a hot iron and made smooth. The yoke is then laid out $3\frac{1}{2}$ inches thick in the cen-

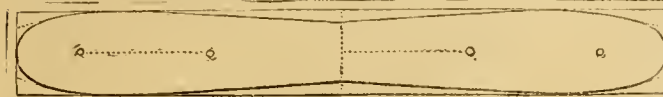


Fig. 2.—TOP OF YOKE.

ter between the bow-holes, and $6\frac{1}{2}$ inches thick in the center between the two bows, where the ring is placed; the ends are beveled off, and lines of proper curvature laid out between the points marked. This is shown in fig. 1. The yoke may be fashioned either with a jig or band saw or a foot-adz, and should then be finished up square and true from the face-side with a drawing-knife. It should then be laid upon its back and $4\frac{1}{2}$ inches marked off at the center for the width, as in fig. 2, cutting off about $1\frac{1}{4}$ inch on each side. The ends are then tapered off, and where previously beveled, are now rounded.

The bottom or inside of the yoke is now to be rounded, by first taking off a broad chamfer and then rounding up smooth, the top to be left flat and square, except a broad chamfer around the edge of the yoke. The bows are 23 to 30 inches in length

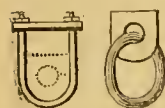


Fig. 3.

and two inches in diameter. No staple is to be used, but a broad strap, which goes around the yoke, having screws cut on the end, and a plate held down by nuts screwed over it, as in fig. 3, clasp the yoke and strengthen it. In the bottom of the strap is placed two pieces of cast-iron (also shown in fig. 3) which have a flange upon the edge and four slight projections upon the top, for which small holes are bored in the yoke, the two pieces are so formed that when placed together they have a hole in the middle in which the ring is inserted; the strap is placed around them and put upon the yoke, and the nuts upon the top screwed tight. Such a yoke is much stronger and better than when a staple passes through it.

Sheep on the Plains.

The raising of sheep mainly for their wool, is undoubtedly destined to make an exceedingly increased growth in the future. Millions of acres of land on the Western plains will within the course of a few years be dotted over with

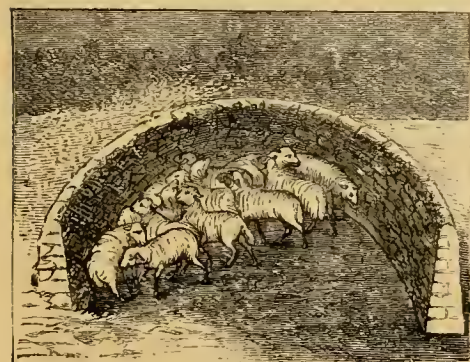


Fig. 1.—SEMICIRCULAR SHEEP-SHELTER.

hundreds of flocks. Everything there is favorable. The climate is dry and exhilarating, the soil is dry and porous, the herbage is short, sweet, and nutritious, aromatic plants which are healthful for sheep abound, and the only difficulty which has hitherto presented itself, to

interfere with the complete success of those who have experimented in this business, has been the sudden snow-storms which have overwhelmed the flocks when unprotected against the unlooked-for contingency. Eastern farmers—

and in fact all the country east of the Missouri River may now be called east—will find their profit in keeping the heavier bodied sheep which will furnish both wool and mutton. These large sheep, kept in small flocks as a part of the mixed agriculture of the smaller farms, will not only be more profitable than the smaller fine-wool sheep, but will be more suitable in every way. For them the hardy Cotswolds or South-Downs and their grades, and in a few cases, where the necessary tact and experience for success are available, the heavier but more delicate Leicesters and Lincoln, will be found the more suitable breeds. For all these sheep, rich pastures, carefully cut and cured clover-hay, roots, with some additional feed in the shape of grain, or oil-cake meal, are needed; and winter

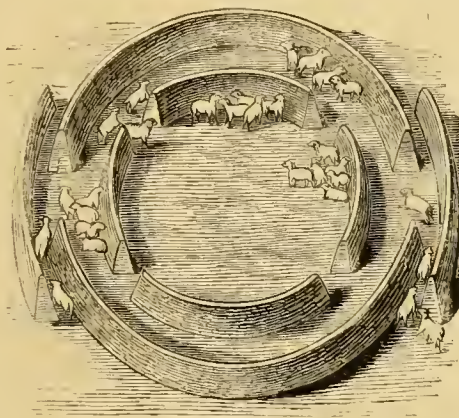


Fig. 2.—CONCENTRIC SHEEP-SHELTER.

pasture is altogether out of the question, excepting in the south, where but little snow falls, and where winter feed in the shape of sown rye, mustard, rape, or roots, is provided. These sheep with their open fleeces require protection from storms, and substantial buildings must be erected for their accommodation. All these costly necessities are out of the question where sheep are kept in large flocks for wool alone. That such flocks must be kept to furnish the fine and medium wools we want for our home manufactures is absolutely certain, and everything shows that the location for such an industry is found in Western Kansas, and further south and west still. A commencement has been made with a certain degree of success. The loss caused by the severe snow-storms for which shepherds were not prepared, has been the only drawback so far of any consequence. The extent of the business in its very commencement foreshadows an immense increase so soon as experience is gained, and the precise conditions of success are known. During summer there is smooth sailing and all goes well. In winter there is plenty of feed self-cured on the ground, and shelter only is necessary to protect the flocks from the storms, which are excessively violent on these exposed open plains. Hay can be put up at a nominal cost, and in any desired quantity wherewith to tide over the intervals during which these storms rage furiously. Ordinary buildings are out of the question, not only from want of material, but for want of funds wherewith to erect them. We have now before us several letters from dwellers on the

Plains, seeking advice as to the way in which they may secure the needed shelters. For them, and others in the like predicament, we propose a system of shelters which we think will meet



Fig. 3.—DIAGRAM OF SHEEP-SHELTER.

their wants. Such shelters are common in European countries where sheep are kept in exposed situations. Mountain pastures and bleak and exposed "downs," exactly similar, except in extent, to our prairies, are always provided with them. To them the sheep instinctively repair in time to escape the severe storms which sweep across their bleak pastures. The black-faced Highland sheep and the Cheviots would have to abandon their pastures if they were not thus protected.

From each shelter the sheep-paths diverge in every direction, and the frequency with which these paths are worn through the tough sod. Long before the threatening sky shows storm to be near; in fact, while the shepherd is still unsuspecting of danger, the flocks come trooping over the broad moors, showing their apprehensions by their noisy bleatings. There they remain snugly sheltered from the driving tempest of snow or sleet behind the lee of the friendly walls. These walls are sometimes of a simple half-circle in shape, and consist of stones roughly laid up, or of sods cut from the pastures and piled up five feet high. The outside of the curve is always placed toward the north or north-west, the direction from which the prevailing storms blow. Where the flocks are small, a few of these are sufficient, scattered about in convenient and accessible places, generally where the configuration of the ground gives additional shelter, as, for instance, on the southern slope of a hill, or where a grove helps to break the force of the storm. Figure 1 shows one of these semicircular shelters. Figure 2 shows a more elaborate one, suitable for larger flocks, and is also designed to protect from storms from whatever direction they may come.



Fig. 4.—DIAGRAM OF SHEEP-SHELTER.

This consists of two half-circles, with entrances flanked and protected by other walls, so that the flock is safe on all quarters. Very often an inner circle is built, which again adds to the protection and increases the amount of cover. There are many other designs chosen for these shelters, all, however, on the same principle. Figs. 3 and 4 show the ground-plan of some of these, and the variety may be endless. Simple

acute angles, triangles, squares, circles, diamonds, and all sorts of designs answer the purpose; and very often a stack of hay will be seen within the shelter, and sometimes a spring of water. With these suggestions, our readers on the Plains will be able to erect for themselves, with such material as they may have at hand, sufficient shelter to prevent the loss of their sheep during even the heaviest and longest continued storms that may occur; remembering that sheep can not exist on shelter alone, and that a supply of hay should always be at hand.

Importing Prize Pigs.

Our advice to a young farmer who contemplates importing some prize pigs from England is, *don't*. Buy the brothers and sisters of the prize pigs, if you like, but not those fed for exhibition. Sidney, in his edition of "Youatt on the Pig," says: "Prize pigs are usually over-fat, even at a breeding show, and are fed on everything that is good, including new milk, rum, apples, and London porter. A bottle of port-wine is sometimes used to restore tone to an exhausted boar after a long journey." This is English testimony. We would advise our young friend to buy pigs from some of our American breeders, rather than to send to England for them. We have been importing pigs for many years at a great cost, and it is time we had as good pigs in this country as in England. If we have not, we should ascertain the cause of our failure. Until this is done, it is useless to keep on importing. We are only doing what has been done over and over again for half-a-century. If you import pigs, do not select those that have taken prizes. The English agricultural societies require no pedigrees, and the prizes are more likely to be taken by cross-bred pigs than by those of an old and thoroughly established breed. The prize cross-bred pigs owe their success at the fairs to the pure blood. And this is what you want—not the prize pigs themselves. It is time this matter was understood.

How to Learn Farming.

A "Young Man" would know how and where he can learn to be a farmer. Now, this question is one that is often presented to us, and in part it is one easily answered. Farming is an art which can be learned only by practice. A young man must learn to be a farmer with plow and harrow and manure-fork, mower, reaper, and constant hard work and close observation. He can not learn it in an office, nor in a study, nor by books, nor without all these. He may by plodding industry become a good laborer, but it must be by head-work, and studying what others have done, and what it is possible for him to do, and the nature of the materials he works with, that he must become a true farmer. This is how; where, is not so easy to point out. It is most probable that a young man would learn most by hiring with a good farmer until he learns to handle tools and stock properly, and thoroughly understands the routine of farm work; and it matters little in what locality he works if he only secures an employer who knows his business, and carries on mixed farming in which stock and the dairy have a share. An intelligent young man needs only this, with study of good agricultural papers—we would recommend the *American Agriculturist*, of course, or we should belie our fitness

as an instructor for the farmer—and a small library of standard agricultural works of reference, to be able to succeed in farming, and to secure as abundant reward therein as in any other branch of industry fittingly entered upon and industriously followed. If it is not possible for him to do this, or undesirable, and he would rather be his own teacher, let him procure a farm mostly in grass, stock it with a few sheep, cows, and hogs and a pair of mares, and the first year raise only a crop of corn, with a few potatoes, and a field of oats or corn-fodder. In the mean time, he should go around amongst his neighbors and see what they do, and not be ashamed to ask for information, nor to show that he knows less than they, and thus learn his business from them, nor be disheartened by first failures, but persevere until success comes. There is nothing in the practice of farming more difficult to learn than the driving of a nail in a proper manner, and a man that can learn this will be able to overcome that in full in course of time. It is to be hoped that before long our agricultural colleges will have so perfected their systems and have so far cleared their way to success, that it will be only necessary to say to a "young man," or any other, Go thither, to the nearest or to the most convenient, and you will find a school of agriculture where you may learn what to do, and how to do it, in the shortest time and in the most complete manner. At present, with some hopeful exceptions, it is impossible to say this.

THE PERCHERON HORSE.—After extended trial, the Percheron horse is found wanting in the most desirable qualities that would fit him for general use on the farm. In the Western States he has been tested thoroughly, and found deficient in speed, soundness, spirit, and intelligence. He fails in those points where failure is fatal to profit and usefulness, namely, the feet and legs; for a horse unsound in his feet is practically a dead horse; and the heavy bodies and soft bones and yielding tendons and muscles of this class of horses predispose them to disease. The Clydesdale has been found preferable to the Percheron, where heavy horses are desired, as being hardier and of better constitution; but our climate, rendering, as it does, lightness and activity of body, good wind, spirit, and endurance indispensable, at the same time renders the slow, unwieldy animal quite unfit for our needs. The thorough-bred crossed on our best and largest native mares will give us exactly the qualities we need for the farm or for the road, and will produce an animal that will out-work and outlive twice over any of the large imported stock.

Profit from Dairy Cows.

Mr. O. A. McFarland writes us from Colorado: "I notice statements in the *Agriculturist* in regard to the profit of a dairy farm *per acre*. That will do for the States, but not for Colorado. I have thousands of acres of good pasture free for seven or eight months of the year, and I can procure hay at four dollars per ton. Grain for cows is here out of the question. Roots can be raised as cheaply as with you, but must be fed raw for want of fuel. Butter is worth 25c. in summer and 40c. to 50c. per lb. in winter, or 35c. for the year. The native hay here is better than timothy. Cows are worth from \$40 to \$60. Calves, \$8 to \$12 in the fall. What is your opinion, with these facts, of the probable suc-

cess of a moderately well-managed dairy, keeping in mind that the profit must be counted per head, and not per acre?"

In such circumstances, if we could be sure that calves would continue to be worth \$8 to \$12 per head, and cows \$40 to \$60, we should devote our attention principally to raising stock. This would pay better than making butter at 25c. per lb., *with hired help*.

With good hay at \$4 per ton, we should not spend much time in raising roots. They would not pay for the labor. Better be content with what the cows will produce from the grass in summer, and let them go dry for two or three months in winter.

The dairy might be kept for the double purpose of raising calves and producing butter. The calves might be given new milk for a week, and then part new and part fresh skimmed milk for three or four weeks, and for another month or so skimmed milk alone, skimmed before it sours. We presume a good average yield of butter per cow in such circumstances would be 100 lbs. a year. The number of cows that could be kept would be limited only by the accommodations for wintering them, and by the number of milkers. A dozen or fifteen cows to each milker would be about the average. Blessed is the man who has a good wife to attend to the butter, and three or four stout boys to help to milk and take care of the cows. There is profit in the business to such a family, but an unmarried man had better turn his attention to something besides dairying. He had better keep sheep, or raise cattle, or, better still, get him a good wife—and do what *she* thinks best.

The Selection of Turkeys for Breeders.

The rule among the great majority of farmers is to breed only from yearling turkeys, and these generally are birds of the second litter. As we try to get at the reason of this practice, diverse old wives' fables are offered in explanation. One is, that large gobblers are apt to crush small hens. If large hens are suggested as a remedy, we are told that large hens are apt to break the eggs. If it is shown that the eggs of large turkeys are larger and stronger, and likely to fare quite as well as small eggs under a small hen, we are told that it is not as well to breed from a cock the second year, or from two-year-old hens. When pressed to relate their experience in that line, they have none, but they have heard of somebody that used an old cock, and the eggs were addled. The real reason of breeding from young birds, in most cases, is that the farmer grudges the few extra pounds of poultry that he has to feed through the winter. The difference between a dozen good birds fit for breeding and a dozen of the second litter, is some sixty or seventy pounds—worth twelve dollars or more. If he markets that poultry he is sure of the money. The cost of keeping large birds in good condition is also more. So he tries to believe that the keeping of the refuse of his flock is good policy. This we know to be a very bad practice. Nothing on the farm pays better than poultry, and turkeys stand at the head of the list, if they can have a good range, and not disturb the crops of neighbors. Turkeys do not reach their full size until their third year, and we believe we can get larger and stronger birds from full-grown stock than from yearlings. In the year 1871 we bred from a large Bronze gobbler, a late summer bird of the previous year, weighing twenty-five pounds, and from yearling hens with few exceptions. The gobbler was

from a very large pair, weighing 62 lbs., and gave us a fine flock. We kept over the gobbler and most of the hens. He had increased his weight to thirty and one half pounds without extra feed, and some of the hens reached eighteen pounds. The result is a much larger flock of turkeys, and they are heavier October 1st than the flock of last year November 1st. This would indicate an average difference of three pounds or more by Christmas in favor of breeding from two-year-old birds. Pairs weighing forty pounds at seven months are much more numerous than pairs weighing thirty-five pounds last year at the same age. The turkeys have had the same care, and the difference in growth seems to be owing simply to the fact that the breeders were of larger size, and more mature. We kept over three late cock-turkeys, October chicks, hoping they would make large birds the second season. In this we were disappointed. Nearly all the spring birds have outstripped them by four or five pounds. The best of the late gobblers only dressed 14 lbs. at Thanksgiving, when he was about fourteen months old. Of course, seven months' feed and the care were lost. We purpose to keep the same breeders the third year, unless we can find something heavier. With a cock weighing 35 lbs. and hens weighing twenty, we think we shall surpass the very satisfactory results of this year. We are confident that nothing pays better than large first-class birds to breed from. Reducing this turkey experience to maxims, we would say: 1. Never breed from late turkeys if it is possible to get better. 2. Never breed from yearling turkeys if you can get two-year-olds. 3. If you must use yearlings, get a cock weighing from 22 lbs. to 28 lbs., and the larger the better, if he is well-formed and handsome in plumage. 4. Large two-year-old cocks weighing 35 lbs. and upwards are cheap at almost any price for which they can be procured. They will leave their mark upon the whole flock, and the influence of such a size will be seen for several generations. No bird yields more readily to skillful breeding than the turkey, and we are glad to recognize the influence of our Poultry Societies in its improvement.

Crops that Require Rich Land

It is an important point for a farmer to ascertain which of his crops require the richest land to produce a maximum growth; and it is often still more important for him to determine to what crop he had better apply his manure. If a farmer had all the manure he needed to enable the soil to produce the largest yield that the season was capable of organizing, the first question would be more important than the second. But such is seldom the case, and we have often to ask ourselves which crop is the best to plant on the richer and which on the poor fields.

Mangel-wurzel, carrots, onions, and rutabagas must have rich land to produce a maximum crop. So must Indian corn. Barley requires richer land than winter wheat. But this does not tell the whole story. As a rule, those crops which require the most labor in planting, cultivating, hoeing, and harvesting, should be sown on the richest land. To spend as much labor and manure in preparing a field for a crop of buckwheat as for one of potatoes is manifestly absurd. If the season is capable of producing 300 bushels of potatoes per acre, we should aim to bring the soil up to this degree of productiveness, because a potato crop requires a good deal of labor, and it is nearly as much

for a small crop as for a large one. For instance: Take two adjoining acres, one rich enough to produce 300 bushels per acre, and the other only capable of producing 100 bushels; the expenses and receipts would be somewhat as follows:

	Acre No. 1. 100 bus. p. acre.	Acre No. 2. 300 bus. p. acre.
Plowing, harrowing, etc.....	\$5.00	\$10.00
Seed, cutting, and planting.....	10.00	15.00
Cultivating and hoeing.....	5.00	10.00
Digging.....	8.00	10.00
Hauling to market.....	5.00	15.00
Interest on land.....	7.00	7.00
	\$40.00	\$67.00
Crop, @ 45c. per bushel.....	45.00	135.00
Profit per acre.....	\$5.00	\$68.00

Now take two adjoining acres of wheat, one of which without manure will produce 15 bushels per acre, and the other with manure 30 bushels per acre. The account would stand about as follows:

	Acre No. 1. 15 bushels.	Acre No. 2. 30 bushels.
Plowing, etc.....	\$7.00	\$10.00
Seed.....	3.00	3.00
Harvesting.....	3.00	5.00
Thrashing and marketing.....	3.00	6.00
Interest on land.....	7.00	7.00
	\$23.00	\$31.00
Wheat and straw.....	30.00	60.00
Profit per acre.....	\$7.00	\$29.00

In the case of the potatoes we get \$63 per acre for our manure, and in the case of wheat \$23.

We believe in making the land rich for all crops; but as this is not an easy matter, we should aim to manure or otherwise enrich the land most for such crops as require the greatest amount of labor. This is the reason why nurserymen, seed-growers, and market-gardeners can afford to pay so much more for manure than ordinary farmers.

Of course there are many things to be taken into consideration in the application of manure. It may not be best to apply manure directly, for instance, to potatoes; but at any rate we should aim to make the land as rich for these as the season and variety will bear without injury to the quality of the crop. With mangel-wurzel and corn, both of which require considerable labor, there can be no doubt that it is desirable to make the soil as rich as circumstances will allow. These crops will admit of using enough manure to make the land rich enough for the following crops of barley, wheat, and clover without injury.

WINTER MANAGEMENT OF CATTLE AT A PRIZE FARM.—The Royal Agricultural Society of England last year awarded the first prize of £150 (\$750) to a Mr. Powell, of Eglwysnuny. His method of managing his cattle deserves particular notice, as being one that might well be adopted on many of our stock farms. He keeps a herd of 120 Herefords. The cows drop their calves in autumn and winter, and the calves are allowed to suck for four or five months. They are confined, five or six together, in boxes partitioned off, and go to the cows in the yards twice a day. They are given, as soon as they will eat it, some of the best hay, pulped roots, and a small quantity of oats and pea-meal. The cows are fed straw, rough hay, and sliced roots; and on this feed keep always fat. When the calves are weaned, the cows are milked, and butter and cheese are made. Such winter treatment is far more profitable than that common amongst us, for our stock is generally during this season merely kept alive, or, if prevented from losing flesh, certainly very rarely increases in weight.

The Cattle Market for 1872.

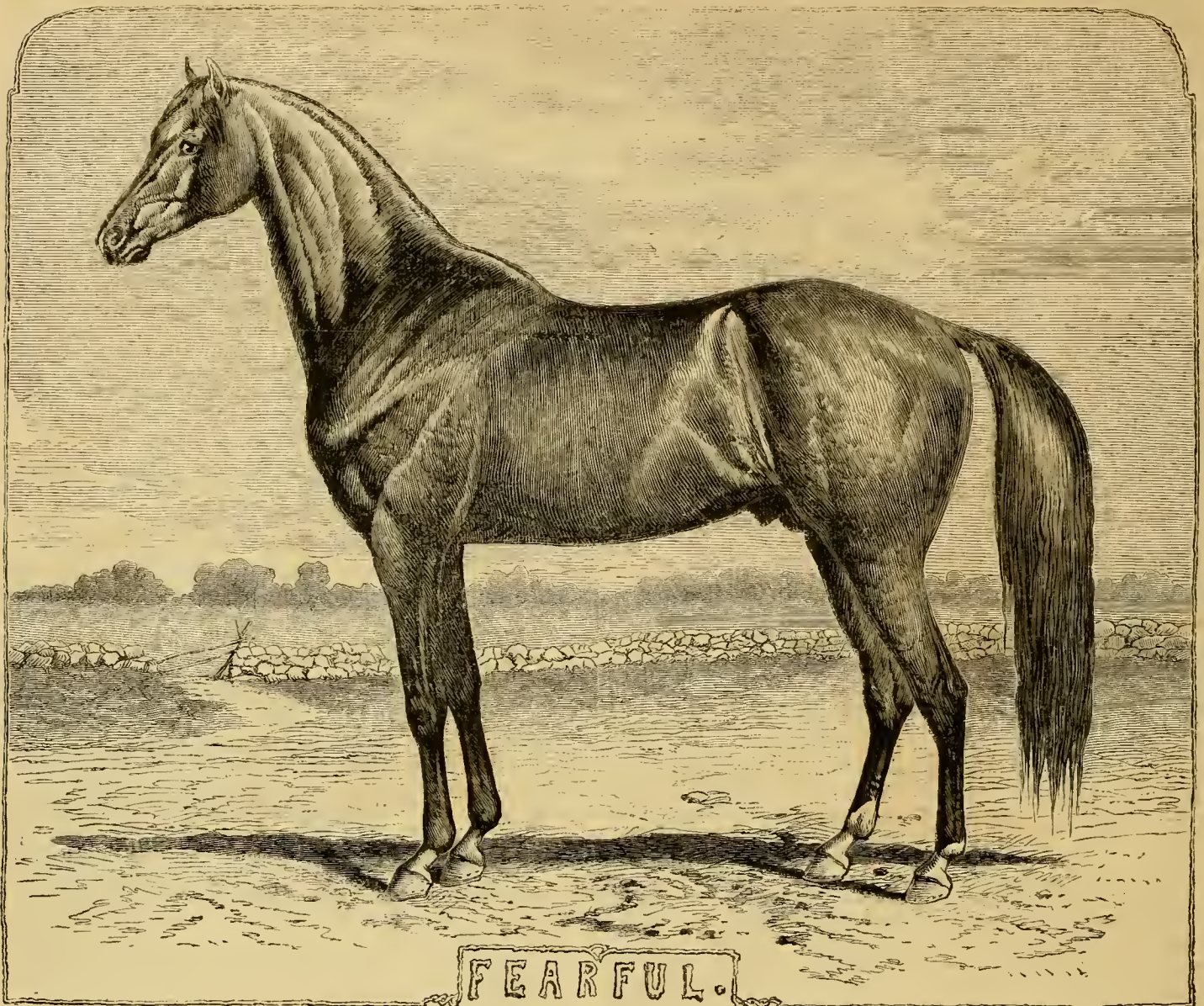
The statistics of the New York Cattle Market for the past year are instructive. The total number of animals which reached the market during the year were 443,596 beeves, 4,923 cows, 59,670 calves, 1,201,826 sheep and lambs, and 1,872,506 swine. Stock arrived from almost every one of the States. 68 steers came from Colorado. Kentucky, notwithstanding its blue-grass pastures and its splendid Shorthorn herds, no longer holds the top of the market in its hands, but Illinois and Ohio now share it; grade steers from those States bring equal prices with those from Kentucky. But the most notable and instructive lesson from the figures, is drawn from a comparison of prices ruling during the year. For instance, the prices of native stock, as compared with grades, are as follows:

NATIVE STEERS.			
Net weight, 5½ to 7 cwt.	8½ to 12½ cts. per lb.		
" " 7 " 8½ "	12½ " 14 " "		
GRADE STEERS.			
Net weight, 8½ to 12 cwt.	14½ to 15 cts. per lb.		
" " 10 " 15 "	14 " 18 " "		

Native steers are allowed 50 to 56 pounds to the hundred live-weight, while grades are estimated at 56 to 66 pounds per hundred. The differences in value, therefore, range between \$46.75 for a coarse poor native, dressing 550 pounds, to \$270 for a grade steer, dressing 1500 pounds. Now while it is obviously impossible that every farmer can raise 1500-pound steers of grade, Shorthorn, or Hereford stock, yet it is perfectly possible for every man who sends a scallawag of 550 pounds, to improve the market value of his stock, even if of native blood entirely, up to a value of \$100 or over. The difference between \$46.75 and \$100 shows nothing but the loss due to bad and careless management, and scanty and poor feed. But if pure blood is used to elevate the character of the stock, and the best farming resorted to, to raise proper and sufficient feed, the value may be again doubled and the \$100 brought up to \$200. What a fruitful field for thought is here presented to farmers, and what a prize is here offered for the best cultivation of that field! We have not space to enlarge upon this subject, but it commends itself to the thoughtful farmer, and should surely cause a commotion in his head, as it has caused a scarcity in his pocket. There is a wonderful chord of sympathy between these two organs when the latter is rightly touched.

A Company Ice-House.

For people who live in villages, or in their suburbs, it is cheaper to buy ice for a few months in the summer than to lay in a store at home. Those who have the necessary machinery and houses can cut and store the ice at a cost of twenty-five cents a ton, and distribute it to customers at twenty-five cents a hundred, and make a good business of it. The isolated farmer, of course, must have his own ice-house or go without ice; but there are many farmers living in close proximity, so that an ice-house at the pond or river would accommodate a half-dozen or more families living within a mile from it. It would be a very easy thing for these families to unite their labors, put up a company house large enough to hold say a hundred tons, and use the crop in common the next season. By uniting their labors the house could be more economically built, and filled. Ice keeps much better



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TROTting STALLION.—OWNED BY S. A. MILLS, ESQ.—*Drawn and Engraved for the American Agriculturist.*

in a large body than in a small one. Then, with a large ice-box holding four or five hundred pounds, and having room for meats, vegetables, fruits, etc., at each home, it would only be necessary to open the ice-house once a week in summer to supply the families. If the parties owning the house would take turns in filling the boxes, it would take but a little time to give all the families the luxury of a plenty of ice through the season. This company arrangement is entirely practicable in the older parts of the country, and works well. It is true that the isolated farmer had better have his own ice-house than to go without, but it is better still to have the joint-stock house. We have so often given plans of ice-houses with illustrations that one has only to look at our back volumes to find a plan that will suit him. The supposed cost often prevents one from building. But very little, if any, money outlay is necessary. The plainest, roughest materials will suffice to keep ice if they are only put together so as to afford good drainage, and secure a non-conducting medium on all sides of the body of ice. Wood, stone, or brick may be used, and it is not at all necessary that the stone should be faced. A fair ice-house may be made of rails and slabs from a saw-mill, with plenty of straw and sawdust. Put up a company house, and fill it.

Fearful.

The above portrait, taken from life by our artist, represents Fearful, a bay colt, four years old and 15 hands high, the property of S. A. Mills, of Newtown, L. I. Mr. Mills is a wealthy banker of New York, who finds recreation from his active business in the management of a farm of 170 acres, situated at Newtown, a few miles from New York, which he has devoted to the breeding of a very high class of trotters. His stock includes six brood-mares, four stallions, and eight fillies and colts, in which is found the best blood attainable in the United States.

Fearful is a nephew to Dexter, his sire being Dictator, full brother to Dexter; his dam is Lady Quackenboss, a perfect bay mare of great endurance, she by Mambrino Chief, out of dam by Vermont Rattler. He is a beautifully formed colt, shows great speed, and has a tremendous stride. When but thirteen months old, the sum of \$3,000 was paid for him. His services in the stud have already produced three colts of great promise, and his best points are well marked upon his progeny.

It is fortunate for the agricultural interests of the country that such men as Mr. Mills devote their leisure and wealth to the breeding of thorough-bred stock. It is from these high-blooded

animals that the improvement so much needed in our stock generally is to come. We have now the best trotting stock in the world, and trotting horses are animals of general utility, differing in this respect from running horses, which are not adapted to American tastes or needs. Blood of the quality existing in our thorough-breds gives endurance, activity, and speed to our common stock when crossed therewith, and these are precisely the qualities our farmers need to have engrafted on to their working animals. Coarse, heavy animals are slow, unintelligent workers, heavy and unprofitable feeders, continually subject to unsoundness in joint and limb, and of such failing constitutions that it is rare to find one entirely free from blemish or disease. On the other hand, the American thorough-bred is light of limb, and yet of dense bone and elastic but wiry tendon; his temperament is noble, ambitious, and courageous, never permitting him to succumb to defeat, nor to submit hopelessly to ordinary ailments; he never refuses to exert his utmost strength, even in the face of impossibilities; he is very rarely or never vicious, and his instincts are so acute that his education comes as it were by nature. In short, although the horse under any aspect is a noble brute, yet a thorough-bred is an animal of the very highest nobility.

The New Zealand Flax.

There are many plants that produce valuable fibers which our present mechanical and

plant, which we placed as a center-piece of a bed upon the lawn. It did not grow as rapidly as we expected, and the surrounding plants so detracted from its appearance, that it received

Ornamental Capsicums.

The fruit of the common Capsicum or Red Pepper of our gardens is when ripe very showy



NEW ZEALAND FLAX.—(*Phormium tenax*.)



SMALL-LEAVED AND YELLOW-FRUITED CAPSICUMS.

chemical skill are as yet unable to separate in a manner that will make them profitable articles of commerce and manufacture. Among these is the New Zealand Flax, *Phormium tenax*, which grows abundantly in New Zealand and Norfolk Island, and has been known since the days of Captain Cook. The plant in its natural state seems to vary so much in the length and color of its leaves, that four species have been described, but botanists at present consider all as belonging to one variable species. The natives of the islands named use the fiber of the leaves for making clothing, nets, and for other purposes, but thus far the difficulty of freeing the fiber of a viscid, gummy matter that adheres to it has prevented it from becoming an article of commerce to any considerable extent.

The underground stem of the plant throws up large tufts of leaves, which grow in opposite rows, overlapping each other at the base much after the manner of an Iris. In the different varieties the leaves grow from three to six feet long, and are in color from a very dark green to a pale glaucous one. The flower-stalks are twice as long as the leaves, and bear upon their branches numerous orange-colored flowers of the general structure of the Lily Family, to which the plant belongs. The New Zealand Flax is often grown in greenhouses and conservatories as an ornamental plant. There is a form with variegated leaves that is handsome, but is unfortunately of very slow growth. The plant is hardy in the south of France, and would no doubt be so in several of our Southern States. As an ornamental plant it is worthy of consideration. Last spring we received from Mr. George Such, South Amboy, N. J., a small

but little attention until fall, when, the less persistent things having died away, we found we had a very handsome thrifty plant of the New Zealand Flax. This was potted and placed upon a stand in the dining-room, to which it is a con-

but it is so concealed by the leaves of the plant that it is not readily seen. Last season we cultivated two kinds which are quite ornamental. A year ago last autumn we saw at the store of Thorburn & Co. a potted plant filled with fruit of a bright lemon-yellow color of a Capsicum which was quite new to us. We were kindly offered one of the peppers, the seeds from which enabled us to grow the variety. The plants grew from a foot to 18 inches high, and the fruit, which ripened quite early, was of the shape shown in the engraving, and a little larger. The surface is quite knobby and uneven, and has a peculiar waxy luster. As a pot-plant, placed where it can be seen upon a level with the eye, it will be a useful ornament to contrast with the various kinds of bright-berried Solanums.

Among some specimens sent for determination from Texas, there was one with ripe fruit of *Capsicum microphyllum*, the Small-leaved Capsicum. The seeds of this were sown, and we had the satisfaction of growing the plant, which we had often met with in the wild state in Texas and Northern Mexico. It grows to the height of two feet, and has a peculiarly forked manner of branching (*diehotomous*, as the botanist would say), and in the axil of each fork is borne a flower, which is succeeded by a bright red berry, of the size of a large pea, upon a long stalk. The engraving shows the manner of branching, and the leaves and fruit of the natural size. A well-grown plant of this, with its hundreds of ripe fruits, is a really beautiful object. The berries, though small, are intensely pungent, and are employed as a condiment by Mexicans and others under the name of *Chipatlane*. The whole peppers are placed upon the



SHOCKLEY APPLE.—(See next page.)

spicuous ornament. As the plant is not very sensitive to alternations of temperature, it is a suitable one for house decoration for those who value a plant for its cheery green foliage alone.

table, and those who wish to indulge in their fiery pungency crush them with their knives, or in the more primitive method of rubbing between the thumb and fingers.

The Shockley Apple.

We are indebted to Mr. P. J. Berckmans, the eminent pomologist of Augusta, Ga., for specimens of the Shockley, an apple of great repute in the Southern States for its keeping qualities. This variety originated in Jackson Co., Ga., and the tree is said to be very vigorous, and to produce large crops of fruit regularly. It will be seen from the outline of an average specimen, that it is rather small in size and somewhat conical in form. The fruit is one of great beauty, its surface being very regular, brightly colored, and of a waxy appearance. The ground color is a warm yellow, overlaid with marblings of scarlet and crimson. The flavor is sub-acid, and too sweet and lacking in character to take the first rank as to quality, but this deficiency is compensated for by its remarkable keeping qualities. Mr. B. informs us that the Shockley is easily kept until early summer apples appear. It is a variety well worthy the attention of Northern orchardists.

Roses.—The Class to Plant.

BY PETER HENDERSON.

Every year's experience in the cultivation of the Rose confirms me in the opinion that the *tender* or monthly varieties—embraced under the heads of Tea, Bourbon, Bengal, and Noisette—are such as are best suited for our hot summers. The *hardy* varieties, known as Hybrid Perpetuals, although the flowers are generally finer in their first and almost only bloom in June, are entirely wanting in the "perpetual" character that their name indicates. In fact, the term "perpetual" applied to that class is, for us, a complete misnomer, and one which brings upon us florists no little odium. Then why give it that term, or why hold to it? may be asked. The term is an English one, and may be applied properly enough in England, for in their lower summer temperature and humid climate the Hybrid Perpetual class of Roses grow without check from June to October, and consequently bloom as they grow. Here in our tropical summer the bloom in June is succeeded usually by a dry atmosphere, and a temperature running from 75° to 95° in the shade for two months, and to which, so to speak, the cold-blooded nature of the "Hybrid Perpetual" refuses to respond, and stagnates less or more until the more congenial days of autumn arrive. So with us it is far from being perpetual, as it gives us only one full blooming in June, with a few straggling flowers in September or October.

But the Perpetual class being the favorite in Europe, the great majority of new roses we import are from that class. Thus we keep on year after year pandering to this "perpetual" story, first partly deceiving ourselves, and then wholly deceiving our customers. Our patrons in the Northern States usually ask us for a hardy rose that will bloom monthly, but let it be fully understood that there is no ever-blooming rose that in ordinary conditions of shelter will stand in any section where the thermometer falls down to zero, unless protected. This protection is a very simple matter—any mulching of leaves, sawdust, tan-bark, or such material,

placed six inches deep around the roots of the plants, will keep enough of them alive to give splendid plants the next season. The important point is that it should not be done too early in this section; it need not be done until the middle of December. If done too early, it would rot the stems.

Hardiness in any rose in the Northern States can only be had at the expense of ever-blooming, or, in other words, all plants, roses or others, that will endure our winters without protection, with few trifling exceptions, bloom fully only once in the season. True, there may be cases, as we have before said, owing to special conditions of soil or shelter, where some of the true monthly roses will stand year after year and be hardy, but these exceptions are rare ones. A knowledge of this fact would prevent much disappointment among the lovers of flowers, and save us who are dealers a world of time in explanations.

Apropos of this subject, a well-known German florist related to me the other day, in a high state of irritation, his troubles in this way. He said: "I have so much drouble with the ladies when dey comes to buy mine rose; dey wants him hardy, dey wants him doubles, dey wants him moonldy, dey wants him fragrand, dey wants him nice goular, dey wants him ebrydings in one rose. I hopes I am not what you calls one uncalled man, but I have somedimes to say to dat ladies: Madam, I never often sees dat ladies dat was beautiful, dat was rich, dat was good tember, dat was youngs, dat was clever, dat was perfection in one ladies. I sees her much not!"

FRUIT IN NEBRASKA.—It seems strange to be able to record as one of our best fruit-growing States one which only a few years ago had no existence on our maps. The soil and climate of Nebraska seem wonderfully well adapted to fruit culture, and the exhibition of fruit at the last State Fair has been spoken of by all who saw it as something almost without parallel. Hon. Robert W. Furnas, Pres. of the State Board of Agriculture, kindly sends us some stereoscopic views of the fruit-tables at the Exhibition. These shadows are enough to make one wish that he had seen the reality.

Crawfish and Cranberries.

The following comes from a cranberry cultivator in Wisconsin:

"Three elements," says an experienced cranberry culturist, "are necessary to grow cranberries. Muck or peat, sand, and water, the first two in proper proportions, and the latter under perfect control." "The peat swamps in the Middle and Eastern States are deficient in silex, being composed of clear vegetable matter deposited from each annual growth through a long series of years. To adapt such land to the growth of cranberries, the Eastern cultivators cover their marshes with about four inches of sand, carted from the neighboring banks.

The average cost of this operation is estimated at about \$40 per acre. A thorough examination of the marshes and peat-swamps of Wisconsin shows a large percentage of sand mixed with the peat throughout, and in the spring, when the snow-water goes off, the surface is often traced with sand deposited by the receding water. That these natural sanded marshes are well adapted to the growth of cranberries is evinced by the spontaneous crop

that crimson the ground every autumn in locations spared by the devastating fires that sweep that country every dry season.

How these marshes in Wisconsin have become sanded, and even the surface-water freighted with a silicious sediment, is a question one would naturally refer to the geologist, but the zoölogist must here claim the field. The little animal familiarly known as the "Crawfish," a miniature lobster in appearance, is the sole engineer and operator in this work.

Digging a perpendicular hole or well until he strikes water, be it 2 or 20 feet deep, this little creature brings to the surface a large amount of dirt, and as sand underlies all of these marshes, the amount brought to the surface each time he repairs his home or changes his location is considerable. Thus, long before the white man trod these wilds, this little crustacean was quietly preparing these lands for future use, and the actual value to the land that will be brought into cranberry culture can scarcely be estimated, saving an expense of about \$40 per acre to each.

CRANBERRY CULTURIST.

Vegetables—A Few Select Kinds.

BY PETER HENDERSON.

As spring approaches, I begin to receive numbers of letters inquiring about the relative value of the different kinds of vegetables, and although what we recommend as the best, will doubtless not apply to every section of the country, or accord with the views of all, yet we believe the list given below, with a few exceptions, will suit well, either for private use or for market-garden culture. The several varieties are named in the order of their earliness:

Asparagus.—Van Sicken's Colossal.

Beans, Dwarf or Bush.—Early Valentine, Early Mohawk, Refugee, Black-wax.

Beans, Pole.—Large Lima and Scarlet Runner.

Beet.—Egyptian, Dewing's Blood-Turnip, Short-Top Round, Long Smooth Red.

Broccoli.—White Cape and Purple Cape.

Brussels Sprouts.—Roseberry.

Borecole or Kale.—Dwarf Curled, Scotch Greens.

Cabbage.—Early Jersey Wakefield, Early Oxheart, Early Winningstadt, Fottler's Brunswick, Premium Flat Dutch, Large Bergen, Marble-head Mammoth, Drumhead Savoy.

Carrot.—French Forcing, Early Horn, Long Orange.

Cauliflower.—Extra Early Erfurt, Early Paris, Dwarf Mammoth.

Celery.—Sandringham Dwarf White, White Solid, Hood's Dwarf Red, Dwarf Crimson.

Corn, Sweet.—Early Narragansett, Crosby's Early Sugar, Stowell's Evergreen, Mammoth Sugar.

Cucumber.—Improved White Spine, Long Green.

Cucumber—Frame or Forcing.—Sion House, Favorite, Cuthill's Black Spine, Marquis of Lorne.

Egg-Plant.—New York Improved, Black Pekin.

Endive.—Green and White Curled, French Moss.

Kohl Rabi.—White and Purple Vienna.

Leek.—Musselburgh, Large London Flag.

Lettuce.—All the Year Round, Early Simpson, Boston Market, Butter, Drumhead or Malta, Curled India.

Melon (Musk).—Nutmeg, Green Citron, Skillman.

Melon (Water).—Phinney's Early, Long Carolina, Mountain Sweet.

Onion.—White and Red Marzajola, Early Large Red, Yellow Strasburg, White Portugal.

Parsnip.—Student.

Parsley.—Moss Curled, Double Curled.

Peas (First Early).—Carter's First Crop, Philadelphia, Extra Early, McLean's Little Gem, Blue Peter.

Peas (Second Early).—Laxton's Prolific, Epicurean, Dwarf Waterloo.

Peas (General Crop).—Champion of England, Premier, Vietch's Perfection.

Pepper.—Large Bell, Squash.

Potato.—Early Rose, Jersey Peachblow, Peerless, Late Rose.

Radish.—Long Short-top Scarlet, Round Short-top Scarlet, French Breakfast, China Winter, Black and White Spanish.

Rhubarb.—Linnaeus and Victoria.

Spinach.—Round.

Squash.—White and Yellow Bush, Boston Marrow, Hubbard.

Tomato.—Waring's Trophy, New York Market, General Grant.

Turnip.—Red and White Top Strap-Leaf, Yellow Globe, American Ruta-baga, Long White French.

Among the sorts named, we desire to call special attention to the following, as decided improvements:

Van Sicken's Colossal Asparagus should be grown to the exclusion of all others.

In Celery, *Sandringham Dwarf White* is larger, but equally fine and similar in all other respects to the "Incomparable Dwarf," which we have been growing for the past ten years.

In Egg-Plant, the Black Pekin we find better flavored than any other, though in appearance not quite so marketable.

In Lettuce, for growing under glass, "All the Year Round" and "Boston Market" are now the favorites for plain-leaved sorts, while for Curled, "Simpson" or "Silesia" is still preferred.

The New Neapolitan Onions, Red and White Marzajola, are a great advance in earliness. By what we saw of them in London last summer, we should judge that seeds sown in early spring would come to maturity nearly as soon as "sets" planted at the same time.

In Peas, McLean's "Blue Peter" is quite a novelty, growing only about nine inches in height, of exquisite flavor, and bearing pods in great profusion.

Mulberries.

Mulberries seem to have nearly gone out of fashion. Perhaps the perfect failure of the *Multicaulis* speculation disgusted people with everything that bore the name of Mulberry. At all events, we see trees much less frequently now than formerly. The Persian, or, as it is more generally called, the English, is a fine-flavored fruit, and is worth growing wherever the climate will allow. Downing's Everbearing is a seedling of the *Multicaulis*, and remains a long time in bearing, although it does not give a very large amount of fruit at once. The fruit is much esteemed by many for cooking. Hick's Everbearing is a Kentucky seedling, and though a better bearer than the Downing, its fruit is inferior to that in quality. This tree is valued at the South for planting in poultry-yards. It is a rapid grower, spreads widely, and makes a dense shade, while its abundant fruit furnishes food to

the fowls. A new variety is mentioned in the French journals, which originated in Hungary, and is called *Morus alba Fegyvernekiana*. Though the name is long, the tree is not, as it grows only about six feet high, and is spoken of as a dwarf of remarkable beauty.

Seeds and Plants by Mail.

The liberality of our postal law, which allowed seeds and plants in packages under four pounds in weight to go by mail at a low rate of postage, was not only a matter of congratulation to our own people, but the envy of those of other countries. Last Congress, wishing to extend the mail facilities, passed a law allowing merchandise of other kinds to go through the mails in packages not exceeding twelve ounces in weight. Unfortunately the authorities of the P. O. Department construed the law to restrict all parcels, seeds and plants included, to the weight of 12 oz. The result of this was to largely restrict the sending of seeds, and to almost entirely cut off the forwarding of plants by mail, to the great annoyance of the seedmen, and the great inconvenience of those who had been accustomed to receive their supplies by mail. Besides, the restriction of the size of the parcels made more work for the post-office clerks, as they were obliged to handle and cancel the stamps upon five parcels instead of one. That this construction of the law by the department was contrary to the intent of those who passed it, we know from conversation with members of both houses of Congress, and this is shown to be the case by the passage early in the session of a law restoring the postage upon seeds and plants to its old status. Packages under four pounds in weight can under this new law be sent at the rate of two cents for four ounces.

It is not often that a great wrong—a wrong not merely to the few hundred dealers, but to the many thousands who receive seeds and plants—is so quickly righted, and it is but fair to state that the credit of this prompt action is due to the energy and perseverance of Gen. B. F. Butler, to whom, in behalf of our many readers, we return thanks.

Now that the postal change has been gained, it is in order for horticulturists to ask Congress to facilitate the importation of plants. Of some kinds of plants three fourths are lost by the delay at the Custom-House. We do not so much object to paying duty, but give us our plants alive.

Printers' Ink and Canker-Worms.

F. G. Pratt, Concord, Mass., writes as follows: "In the December number, I see an article on the Canker-worm, giving a remedy for the pest. My father, as Superintendent of Public Grounds of Concord, has for the past three years had the charge of the noble elms that line the streets of this ancient town. He uses the refuse printers' ink for that purpose, and finds it effectual. But my object in writing this was to say that the sheathing-paper is useless, and only increases the expense. We merely smooth the rough bark slightly with a drawing-shave, and spread the ink directly on to the bark. It does not injure the tree; it can be put on much faster, and is much more effectual, as it leaves no chance for the moth to go up under the paper, which can not be made perfectly tight and

close. The female moth begins to run about the first week in November, and runs from then to the middle or last of April, whenever a warm thaw comes on during the winter. The ink must be put on about once in ten days during the fall and spring, and whenever a long thaw seems likely during the winter. The slightest contact with the ink is death to the insect."

SUPPORTS FOR POT-PLANTS.—A stick or rod, even a very light one, appears clumsy when used to support very slender plants, such as the flower-stems of Carnations, etc. We not long ago saw in an English journal a device which we have since used with much satisfaction. The support is made of small galvanized iron wire; this is formed into a spiral with its turns wide apart, by winding it around a rod, leaving that portion straight which goes into the soil of the pot. The stem of the plant can be passed into the turns of the wire, which when nicely adjusted will be so concealed by the leaves as not to be unpleasantly conspicuous. Galvanized wire will answer admirably to make other supports, such as balloon-frames, for which rattan and similar material is generally employed. The effect of all plants needing a frame or other support, is much detracted from if these are made at all conspicuous.

Some Evergreen Native Ferns.

Ferns are generally so graceful, and present such a variety of form, that it is no wonder that they are popular with plant-lovers. Both outdoor and in-door ferneries have of late become popular, and both native and exotic species are used to fill them. For out-door ferneries almost any of our native species may be used, there being but few, and these very rare ones, that are particular about locality, provided they have sufficient shade. Those who in their rambles select graceful and attractive ferns for an in-door fernery are likely to be sadly disappointed as one by one the beautiful fronds disappear. Many do not know that while some ferns are evergreen others are deciduous—that is, die down at the end of the growing season. The in-door fernery is intended to be bright during the winter months, and these deciduous ferns are entirely unsuited to the purpose. We have a few evergreen ones which may be satisfactorily used, provided the fernery is kept in a cool room, but for the most part the exotics will be found to best answer the purpose.

We give figures of three of our native evergreen ferns, which are susceptible of cultivation in a cool fernery, and which are especially interesting as being among the few low evergreens that add brightness to our winter landscape. Those who go into the woods in spring and summer only, forego much of the pleasure of a country life. There is much that a lover of nature can enjoy in winter, and we do not know of a more pleasing sight than that of a snow-covered bank with the dark green of these persistent ferns showing against the snow.

One of our commonest ferns is the Polypody, *Polypodium vulgare*. This is found in both Europe and this country, and is almost everywhere common in rocky places. Its root-stock is branching, and this suggested its botanical name, which is from the Greek, meaning *many* and *foot*. It is not our intention to give a botanical description of ferns, but we may merely state that the reproductive organs are in most kinds in the form of brownish dots upon

the underside of the fronds, or what are popularly called the leaves. Some fronds will be found to be entirely barren, while others will have fruit-dots upon their upper portions, and it often happens that these fronds or divisions of fronds are of shape different from those

which got its name from the fact that the fruit-dots are placed in such a manner as to resemble lines in poetry; so we think this might as well be called the Acrostic Shield-fern by those who do not care to remember the botanical name given above. This fern has very strong and

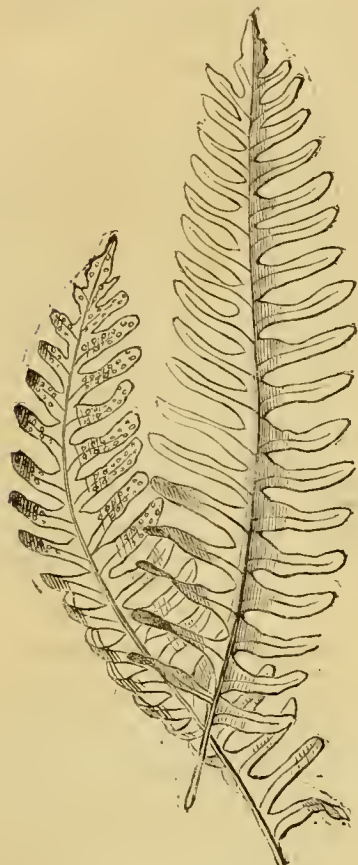


Fig. 1.—POLYPODY.

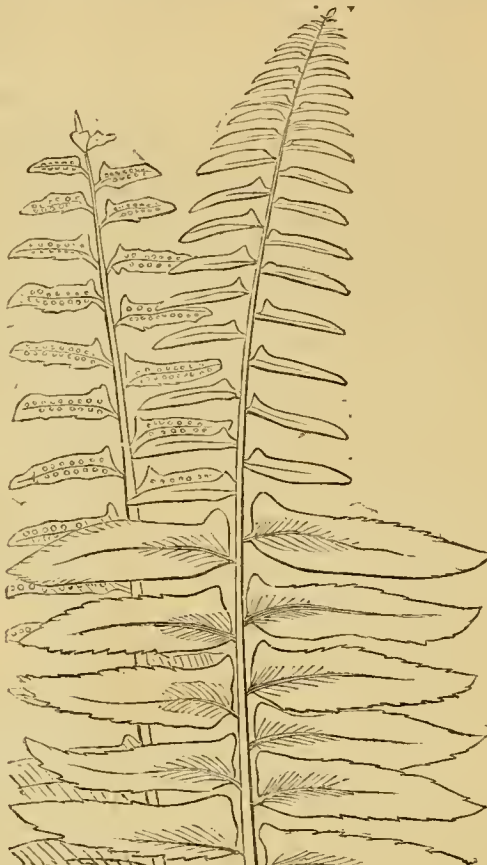


Fig. 2.—ACROSTIC FERN.

which are sterile and bear no fruit-dots. In the common Polypody, the fronds (or leaves) grow from six inches to a foot long, and have their divisions extending down to the midrib. The fruit-dots are roundish, and in two rows, midway between the midrib of the division and the margin. In many ferns the fruit-dots are covered, when young at least, by a membrane, but

thick fronds, and the *rachis*, or stem as it would be generally called, has brownish scales upon it, which are not shown in the engraving. It grows from one to two feet high, the divisions have an appendage on the lower side, and the upper divisions, when fruit-bearing, are much narrower than the lower and sterile ones, which have small bristly teeth on the margin.

The fruit-dots when young are covered by a membrane, and when old they run together so that their shape is lost. A variety is found in which the divisions of the fronds are more or less deeply cut and toothed. This fern is very common upon wooded hill-sides. Figure 3 gives one of our most delicate evergreen ferns, *Asplenium ebeneum*, the Ebony Splenwort, so called because the stem of the frond is blackish and shiny, like ebony. This is a rather common fern in rocky woods, and grows from eight inches to a foot or more high, forming

pretty little tufts. The divisions are generally lanceolate, but differ considerably in outline. There are several other evergreen ferns, but they are generally rarer than the ones we have named. We have seen these successfully grown in a cool room without the protection of the glass of a fernery, but it would be useless to attempt their cultivation in the hot and dry atmosphere of an ordinary dwelling room. Whether grown in-doors or out, evergreen ferns should not be long exposed to full sun.

The "Marblehead" Squash.

Some weeks ago we received from Mr. James J. H. Gregory, of Marblehead, Mass., the well-known introducer of the Hubbard, specimens of a squash which came without name. The squash was tried by several, and unanimously pronounced to be of the very highest quality. We have since received from Mr. Gregory some particulars of its history. He first became acquainted with this variety many years ago, finding it growing in the garden of an old sea-captain at Marblehead. The old gentleman had procured the seeds in some foreign country which is not mentioned. Mr. Gregory procured seeds from this stock, but when he came to see the resulting crop he found the variety so mixed and crossed by careless culture that he abandoned it. Last year, Mr. G. procured some seeds of a Western farmer of a variety that he said he had obtained from the sea-board, and

upon growing them they proved to be the identical squash that had many years before been cultivated by the old sea-captain. The variety, having been grown by itself, had been kept pure. As this squash first came to Mr. Gregory's notice in the town in which he resides, he appropriately calls it the "Marblehead." The squash, as will be seen by the engraving, which is from a photograph, has the same general appearance as the Hubbard, but it does not taper so much towards the top. The color of its shell is a light blue, and the shell is even harder than that of the Hubbard, and the squash is heavier in proportion to its size than that variety. The flesh, which is rather lighter colored than that of the Hubbard, is remarkably fine-grained, and cooks smooth, while in sweetness, richness, and excellence of flavor we do not recollect to have seen its equal. We supposed that the Hubbard was as good as it was possible for a squash to be, but it will have to look to its laurels. There is much about the character of the flesh that reminds one of the Boston Marrow as it was before it became ruined by mixing. The Hubbard is difficult to find pure, as it has been crossed with a blue squash, and sometimes will give sports that have a bluish color; these should not be confounded with the Marblehead, which Mr. Gregory claims to be the purest of any standard variety of squash with which he is acquainted, which, considering his long experience, is saying a great deal for it.

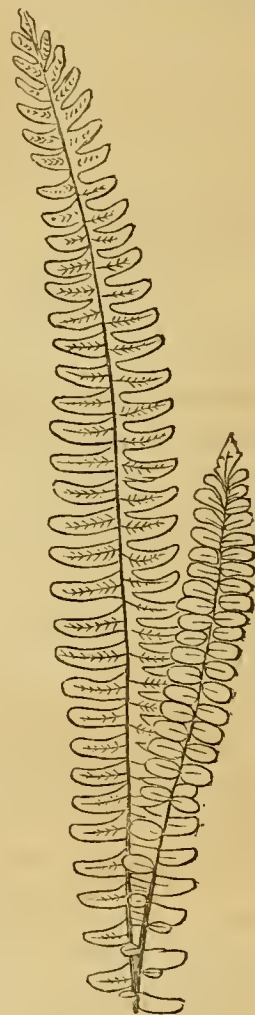
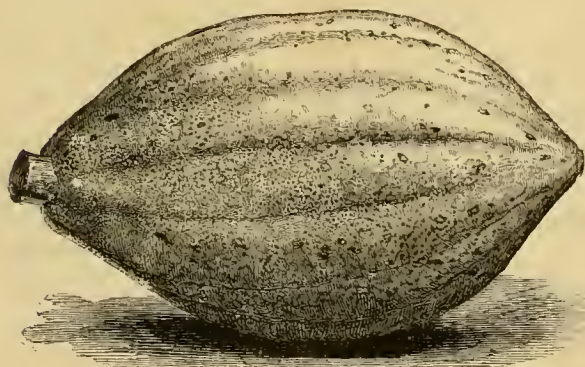


Fig. 3.—EBONY FERN.



MARBLEHEAD SQUASH.

in the Polypody they are always naked. Like many other ferns, the Polypody varies in form, and there are in cultivation some half-dozen or more named varieties in which the divisions of the fronds are variously toothed and subdivided.

In figure 2 we have one of the Shield-Ferns, *Aspidium acrostichoides*. It is unfortunate that this has received no popular name, as it is one of the most showy and common of our Northern species. Its specific name, *acrostichoides*, means resembling *Acrostichum*, another fern

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Coal and Wood Boxes.

A coal-scuttle, or hod, as it is differently called, while it is a most useful household convenience, is not a very sightly thing to have in the sitting-room or parlor. Of late years, the furnishing stores have kept coal-boxes made of heavy sheet-iron, and variously ornamented. True taste demands that a coal-box should be honest, and that its appearance should not be such as to lead any one to suppose that it is anything but a receptacle for coal. Some of the coal-boxes offered for sale are especially absurd. We noticed one in the form of a classic vase. It is bad enough to see these specimens of ancient art converted into flower-pots, but to have them used for coal-boxes, made in iron, highly enameled, and ornamented with flowers, and furnished with a cover, is an outrage upon propriety. A vase with a cover! Another style nearly as bad is a short fluted column with a cover. Unless a column is solid it is worthless. Yet here we have one made hollow, and to hold coal! The most sensible form of coal-box offered for sale is shown in fig. 1. It is made of heavy sheet-iron, and has a handle at front and rear to allow of its being readily carried. Some manufacturers ornament them profusely with flowers and other colored designs, which, as a matter of taste, had better be left off. There are many who would like to have a coal-box who are beyond the reach of furnishing stores, and of workers in iron who could make one for them. These must content themselves with a box of wood. One, made in

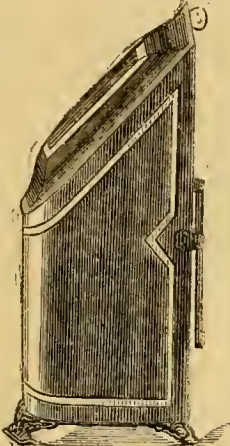


Fig. 1.—COAL-BOX.

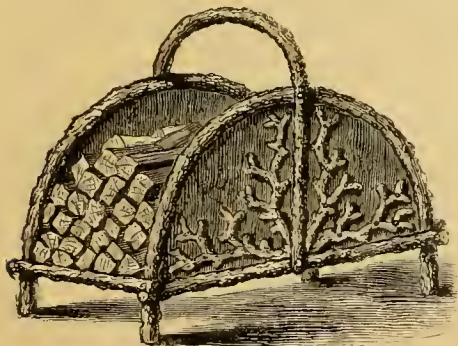


Fig. 2.—RUSTIC WOOD-BOX.

the shape of fig. 1, of wood, and lined if possible with galvanized or sheet-iron or heavy tin, will answer. It is better to have the box lined, as a wooden one in a warm room will shrink so that the joints will allow dust to sift out. The wood may be varnished with shellac or other varnish.

Wood-boxes are a necessity where there are wood fires, as, however carefully it may be managed, wood will make, that dread of all good housekeepers, "a litter." In figure 2 we give a design for a wood-box which may be of a size for one or two persons to carry, and which is susceptible of any desired amount of ornament. The essentials of a wood-box are that it shall keep the wood from contact with the carpet, and prevent the sticks from rolling off. The one we have figured may be made in a rustic style, with saplings and any thin boarding, and may be ornamented with whatever

rustic work may be at hand. Its appearance may be improved by a coating of shellac varnish.

Shellac Varnish.—Staining Woods.

Some folks keep house without shellac varnish. I do not know how they get along. I should as soon think of doing without a tea-kettle as without my bottle of shellac. This is the way I make it. I take a fruit-jar, as being handiest, put in a half or quarter of a pound of shellac, as may be, and take a piece of tin for a cover. A hole through the tin allows the handle of a brush to pass, and the whole, as you will see in the sketch, is complete and ready at a moment's notice. Oh! I forgot. After you have put in your shellac, you must cover it with strong alcohol, and set it in a warm place. If in a hurry, put the bottle in a saucepan of cold water, with a couple of sticks to prevent its touching the bottom of the pan; put the saucepan on the stove, and in a short time the shellac will be dissolved. It will be too thick for use, but when dissolved you can thin with alcohol, so that it will cover well with the brush. If a black-walnut table gets discolored, give the spot a dab with the shellac, and before it gets dry rub it with a woollen cloth upon which there is a little sweet-oil, and the spot will look so much better than the rest of the table that you will have to go over the whole. In fact, this is the whole secret of French polish—shellac varnish rubbed off with sweet-oil. If anything needs slicking up, you can generally do it with the shellac, and for stained work it is beyond compare. As to staining, it is the easiest thing imaginable. People would make many more convenient things if it were not for the trouble of painting them when done. Stain, and you will not bother with paint. It can all be done in an hour.

I use two stains; for mahogany, burnt sienna, and for black-walnut, burnt umber. These can be had in the *dry state* at any paint-shop. They may be mixed—simply stirred up thoroughly—with water or with ale. Ale does not dry so quickly, and allows of more thorough rubbing in. Suppose you have a wardrobe or case of any kind made of common pine. Select which color you please. Make it into a mud with water or ale, and then take a rag and rub the color well into the wood, which must of course be dry. Mind, it is what goes into the pores of the wood that does the business, and it must be *rubbed in*, and not painted on. Let the work dry, and then give a coat of shellac varnish. You will find that, while the wood is stained, the "grain" is preserved, and will be brought out by the varnish in a manner that will surprise those who have never done such work. If you wish the job to be extra nice, put on a second coat of varnish, a little at a time, rub it dry with an oiled woollen rag, and you will have a hard, smooth finish. THORSON.

A Scuttle for Base-burning Stoves.

Mr. John Furbish, Brunswick, Me., whose "Pot and Kettle Scraper" we published last year, sends us photographs of an invention which he describes as follows:

"I send you a cut of my 'base-burner' scuttle or hod, because its use, both at home and by my customers, has rendered it valuable to us, as it seems to complete our 'home comfort,' so far as the stove department goes.

"If you use magazine stoves, you have no occasion to be told that the only real trouble with them is *gas and dust* in filling with the supply of coal, which I attempted to overcome when I contrived for my own use this hod. From the two cuts you will readily see the idea. Figure 1 shows the lid

partly open for filling; figure 2 shows the operation of the curved lever, or arc, by which the lid is opened and closed, which is also shown projecting through the side on fig. 1. This handle is notched, and fastens the lid down when the hod is reversed after filling, preparatory to its being placed in the top opening of the stove, and is discharged by raising the lever. The coal by its own weight is delivered, and all gas and dust kept in, since the hod takes the place of the cover of the stove or urn. Next, by drawing up the lever, the valve is shut, and the hod can be removed at will.



Fig. 1.—BASE-BURNER HOD.

"You will notice in fig. 1 a rim which rests upon the top of the stove, and can be made of any diameter to suit the openings in different sizes and kinds of stoves. The one represented was made for Nos. 23 and 24 'Morning Glory.' The bail being attached at the center allows the hod to revolve readily for filling and discharging.

"These we make of metal, but any person of fair mechanical ability can make one of a small keg (a 25-lb. powder-keg is about right size). Saw a hole in one end, and attach some kind of gear to open and shut the valve. Next fasten a rim on, which serves to keep the scuttle in place, and a very serviceable article is provided. Our ladies think this is as good as my 'pot, pan, and kettle scraper.'"

Home Topics.

BY FAITH ROCHESTER.

MILK FOR BABES.—An old friend writes to me about her wonderful first baby. Among other things, she says: "I nursed him until he was four weeks old, and he grew poor all of the time, and cried almost constantly. Then we found that my milk was good for nothing, and the little fellow was starving. We gave him cow's milk with one third water and sweetened a trifle, but that did not satisfy him, and he had a sour stomach and indigestion all of the time. Finally, we fed him with clear milk, without sugar or water, and since that he has gained every minute, and is getting to be a good baby."

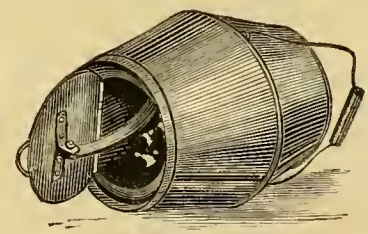


Fig. 2.—HOD, SHOWING LEVER.

I have heard other people of late tell of experiences somewhat similar, cases of babies who did thrive well on watered and sweetened milk, but who began to improve when clear new milk was fed to them. It all goes to show me how impossible it is to make any rule to fit all cases. For what was my own experience with my baby last summer? I have never "brought up a baby by hand," but after weaning the last one, and beginning to give her cow's milk freely, she began to have sores on her head, and kept it up in quite disagreeable fashion for several weeks. Her diet was graham gruel, sifted graham gems and milk, some plain fruit, and unseasoned mashed potatoes. At length it occurred to us that the milk might be too rich. About that time I read in an old *Agriculturist* the opinion of an English physician of large experience, that the milk for babes should be diluted one half

at first, with the water gradually lessened, but not entirely omitted, even after the child was a year old. Baby was a year old. I began mixing her drinks one fourth water and three fourths milk, and from that time the sores went away as fast as possible.

A word here about sores. I would never drive them in or heal them up rapidly by outward applications. Their cause is almost invariably in the diet—too much grease of some kind, usually. Change the diet of the child to more simple yet nutritious fare, and that with pure air and cleanliness is your best method of cure. I ought to say that our cow's milk is unusually rich, and she was almost a year past calving.

I have a suspicion that my friend's child suffered from the sugar in the milk much more than from the water. Only healthy stomachs, among us grown-up people even, can take milk and sugar together without getting a sour stomach in consequence. A very young babe should be fed the milk of a cow whose calf is also very young. As the milk of a cow (or of any animal) grows richer with the increasing age of its offspring, it would probably be necessary to dilute the milk (but not to sweeten it, I think) if only that of a cow several months past calving could be obtained.

TO KEEP FRESH MEAT IN WINTER.—In Minnesota, where winter thaws are not much to be feared, it is quite common to hang up a porker or a leg of venison or beef, and cut from it as it hangs, week after week. It seems to us that meat so kept must greatly deteriorate in flavor. We like best to cut the beef or venison into good pieces for cooking in various ways, and pack them down in snow. Of course they freeze, but thawing a piece brought in to cook is a simple matter. Put frozen poultry or meat in cold water, and all the frost will shortly leave it. A coating of ice will be found on the outside, which will easily cleave off.

TO CLEAN A VERY GREASY SPIDER OR KETTLE.—Don't waste your soap on it. Put ashes into it, and pour in a little water. In a few minutes scrape it all out with a stick, and rinse it out with water. It is then ready for your dish-water and cloth without additional soap.

In that little book called "How to Live, or a Dime a Day," Solon Robinson represents Mrs. Savery as keeping a jar of lye beside her sink, into which she dipped any very greasy dish. Too much trouble for me, and a little dangerous where children are about. A drink of lye would kill a child if not immediately counteracted by plentiful doses of oil.

TOE-CAPS AND EAR-PROTECTORS.—Grandpa, who enjoys no employment more than the preparation of nice stove-wood, must look out for his toes this nipping winter weather. He knows this very well, for he remembers another grandpa who chilled his feet so badly that one of his toes came off after months of slow and steady suffering. So our grandpa wears toe-caps under his stockings. These are cut out of soft flannel, in the shape of the toe of a sock, and made to cover about half of the foot. In sewing them up, the seams are laid flat, so as to make no unpleasant pressure. He thinks his feet keep warm much better when thus protected. Perhaps your grandpa would like to try it.

Ear-protectors, or ear-caps, may be made of silk or velvet, and lined with some warm material. Cut them in an oval shape, large enough to cover the ear when hemmed (or bound), and drawn up with a rubber cord. The cord will keep them in place when the ear is once snugly tucked in. To keep the pair together, fasten a rubber cord to them, one end to each, and long enough to go under the chin, or over the head under the hat, or behind the neck under the hair. Gentlemen find these very comfortable in cold weather. If made of material near the color of the hair they are scarcely noticeable.

Ventilate the Living Rooms.

Whew! How can a body breathe in such a room as this? Every window is dripping with dew. The walls are covered with drops of condensed

steam. The air of the room is all saturated with moisture, and clouds of hot vapor are constantly adding to its unhealthy state. It is not pure water either that escapes from the pots and kettles on the stove. Odorous particles of beef or pork, of turnip, or potato, or cabbage, or what-not, are floating about, and lodging here and there. Have you never smelt fried cakes, or pork, or cabbage, in the best clothes your neighbors wore to meeting? I have. Certain children who went to school with me in my youth always brought a sickening odor of their breakfast griddle-cakes, and—well, of burnt grease, in their clothing.

The air of kitchens often goes from one extreme to another. When it is not unhealthily damp on account of the escape of steam, it is likely to be too much dried, and even scorched, by the cooking-stove when baking or ironing is going on.

If the air is too moist, a sensitive body, or a skin healthily appreciative of wholesome conditions, becomes uncomfortable, and cries out for a supply of fresh air. The body must constantly part with some of its own moisture, or suffer in consequence of having this "insensible perspiration" (which goes on every moment while we are in health) shut in by any cause. If the air is already saturated with moisture, it is in no condition to relieve the skin pores by taking up the degree of vapor which the animal economy brings to the surface. The fluid matter thrown out from the lungs and skin is by no means pure water. It contains carbonic acid and animal matter which is deleterious. *Then let in pure air from the supply out of doors.*

You don't want to "warm up all of out-doors," eh? Well, if you keep your rooms shut tight, and dry the air by heating it, you cheat yourself of warmth in the worst way. You will poison your blood, and not keep comfortably warm either, in a close, hot room. A scientific writer says: "In very dry air the insensible perspiration will be increased, and as it is a true evaporation it will generate cold proportionate to its amount. Those parts of the body which are most insulated in the air, and furthest from the heart, will feel this refrigerating influence most powerfully; hence that coldness of the hands and feet so often experienced. The brain, being screened by the skull from this evaporating influence, will remain relatively hot, and will get surcharged besides with the fluids which are expelled from the extremities by the contraction of the blood-vessels caused by cold." This is the coldness (particularly of the extremities) which the dwellers in close, hot rooms condemn themselves to. This explains their headaches.

Then make a hole somewhere to let out the steam and foul air, and to let in a little uncontaminated oxygen. All windows should be made so as to open at the top. FEMINA.

Neighborly Kindness.

"We ants never borrow, we ants never lend." That is what the ant said to the cricket, you know, when the cricket found its cupboard bare after winter set in.

"When the weather was warm, did you lay nothing by?" Said the cricket: "Not I. My heart was so light that I sang day and night." "Go, then," said the ant, "and dance winter away." When thus he had spoken, he lifted the cricket, And out of the door turned the poor little cricket.

Silly little cricket! But, to tell the truth, I believe I would rather be in the cricket's shoes than in the ant's on that cold winter morning—that is, provided the cricket had a warm and loving heart in its bosom. Of course, we are speaking now of human ants and human crickets.

Industry is a fine thing, but how can it be compared to neighborly love? But would I encourage shiftlessness? Oh! no. But I would encourage something better. *Encourage* is the word. If human ants are too apt to believe that the world was made only for such as themselves, and that it is their duty to crowd every other variety of humanity off from this planet, if possible; whereas "it takes all

sorts of folks to make a world," and if human crickets did not serve some useful purpose, the Lord would not have put them here.

The people who never borrow and never lend, who make a great effort to be perfectly independent of all outside help in the management of all their affairs, are apt to look upon misfortune as a crime. They have strength, they have shrewdness, they have forethought—why should not everybody else have these qualities, and all mind their own business, each scraping up his little or big pile alone, and making it the object of his life to increase and guard that pile?

But misfortune is not a crime, and poverty is not a disgrace. I think of One who "had not where to lay his head." I hear a divine voice saying, "Give to every one that asketh of thee, and from him that would borrow of thee turn not thou away." As I wrote the words "Neighborly Kindness" at the top of my sheet, I saw a little low kitchen where a sick woman lay, with no one but her husband, whose business claimed him ten hours daily, and a child of four, to do anything for her or for the family comfort. She could scarcely drag herself about the room, and the bread was all gone. A neighbor "ran in" for a few minutes in a friendly way—a neighbor with whom the sick woman was upon no particularly intimate terms. After a few minutes she summoned courage, and drew from under her shawl a loaf of bread neatly wrapped in a clean towel, saying, "I thought maybe a loaf of bread would come handy, and I brought one along."

Did the sick woman feel "hurt"? Not at all; nor in the least humiliated, in the usual sense of that word. Both women had learned from their mothers' lips the Lord's prayer, "Give us this day our daily bread." The sick woman said as she took the bread: "Your loaf is very welcome, but the neighborly kindness that prompted you to bring it is sweeter to me than any bread can possibly be." And so it was, and will be to all eternity. Yet what a lift it was on that dark, sick day to have the daily bread supplied! What a lift it was, too, to see that by just such loving thoughtfulness for others, the

"weight of care
That crushes into dumb despair
One half the human race"

might be made endurable, and no one be left to feel desolate and unrequited for!

It is blessed to "receive" with a thankful heart when one is in need, but more blessed still is it to "give," and it is no more selfish to refuse to aid others by the means in your power than it is to hedge yourself all about so that no one can do the least thing for you, and to refuse all the assistance you can possibly do without, accepting what you must take with frigid politeness and the determination to pay for it in cash as soon as possible.

RELL.

Sausage-Making and Keeping.

To make family sausage, the trimmings and other lean and fat portions of pork are used, taking care that there is about twice as much lean as fat; some consider it an improvement to add about one sixth of the weight of lean beef. As to seasoning, that is a matter of taste. The majority of people use salt, pepper, and sage only, some use only salt and pepper, while others, in addition to the above, put in thyme, mace, cloves, and other spices. There is something repulsive about the intestines or "skins" used for stuffing sausages, and the majority preserve the meat in bulk. In cold weather it will keep for a long time, but if it is desired to preserve it beyond cold weather it needs some care. We have found that muslin bags, made of a size to hold a roll $2\frac{1}{2}$ or 3 inches in diameter, keep the meat very satisfactorily. These bags, when filled with sausage-meat, are dipped into melted lard, and hung up in a dry, cool place. For seasoning, we use to 100 lbs. of meat 40 oz. salt, and from 8 to 10 oz. each pepper and sage.

BOYS & GIRLS' COLUMNS.

Boys and Girls' Prizes for 1873.

Just now I am too busy to offer prizes for competition, but they will come later. In the mean while, to keep matters moving, I have asked Aunt Sue to give you something to puzzle over. The prizes will all be worth working for—good and new books. Please notice particularly, that this time answers are to be sent to Aunt Sue, and not to

THE DOCTOR.

It occurs to me that we need stirring up just a little in our puzzle department, and I propose to offer some prizes by way of making things a little more lively. Parties lacking patience need not apply.

We will give six prizes for the best six transpositions on the following verse:

"With his ice and snow and rime,
Let bleak Winter sternly come:
There is not a sunnier clime,
Than a love-lit winter home."

Use those 94 letters, no more nor less; transpose them into different words, then combine the words into a verse or connected sentence: the signature (or *nom de plume*) may be included in the transposition. We shall endeavor to give the decision in the July *Agriculturist*, so communications on the subject must reach me before the 20th of May. Now don't go and drive the Doctor raving, distracted, crazy, but send your letters to

AUNT SUE, Box 111, P. O., Brooklyn, N. Y.

The Doctor's Talks—About a Candle.

Last month we left our candle burning. The heat of the flame melted the tallow, wax, or other material of the candle, so as to form a nice little cup of liquid candle matter, in the center of which was the wick, and this melted matter arose in the wick a short distance to the place where it was burned. This time we were to inquire, "What makes the liquid rise in the wick?"—You know very well if a drop of water falls upon your hand it will stick to it, and no longer remain a round drop, but will spread and wet the hand for a considerable distance. A drop of quicksilver upon the hand will remain a drop and roll around and not wet the hand with quicksilver at all. Probably many of you have never seen quicksilver, but you can find an illustration of the same thing in the garden. Every boy and girl, in the country at least, must have noticed the dew-drops upon a cabbage-leaf, how

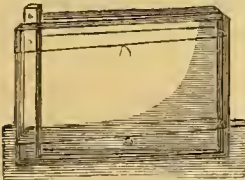


Fig. 2.—TWO PLATES OF GLASS.

words, there is adhesion between the water and the surface of the hand, and no adhesion between quicksilver and the hand, or between water and the cabbage-leaf. Why water will wet some things and not others, or why quicksilver will not wet some things and will wet others—as you would find out to your sorrow if you should handle it while you had a gold ring upon your finger—is something that can not be explained.



Fig. 3.
WINE-GLASS.

It is one of the properties of matter, the same as hardness, weight, etc., are. One reason that the melted candle rises in the wick, is because it can adhere to it and wet it. Now let us examine this matter a little more. If you take a piece of very clean window-glass and hold it in water and examine closely, you will see that the surface of the water where it touches the glass is not perfectly level, but the water rises up a little upon the glass, as in fig. 1, where we are supposed to be looking toward the edge of the glass. The water seems to have such a liking for the glass that it rises a little to touch it. If you are so fortunate as to have two bits of glass of the same size—and any good-natured glazier will cut them 3 or 4 inches square for you out of his broken stock—you can make a very pretty experiment. Having your glass thoroughly

clean, you need a thin sliver of wood about as thick as the glass itself, and some small twine or coarse thread. Put the two pieces of glass together and open them enough to put in the sliver of wood, then wind string around at top and bottom and tie fast. Then you will have two edges of the glass touching each other and opening, like two leaves of a book, to the width of your stick. If you are a



Fig. 4.

little patient, you can arrange this without much difficulty, as shown in fig. 2. If you dip the lower edge of the two pieces of glass into water, you will see the water rise up between them; it will rise the highest where the pieces of glass are nearest together, and will diminish as the glasses spread apart, and so form the handsome curve shown in the figure. You can see this tolerably with water, but if you use a few spoonfuls of milk in a plate it will show so plainly that all in the room can see it. After you have amused yourself—I mean instructed yourself, sufficiently with this, take the glasses apart, clean them, and put them away, because sometime you will wish to show this very pretty experiment to some friend. Let us look at some other illustrations. If you pour water into a perfectly clean tumbler or wine-glass and look at it carefully, you will see that the liquid crawls a little way up the side of the glass, as it did on the surface of the window-glass in fig. 1; bow it looks is shown in fig. 3; the smaller the glass, the more readily will you see the rising of the water. If you have a small vial, such as medicines are sometimes put in—one of those little fellows no bigger than your finger—you will find that water in it, will crawl up the edges, so that its surface will be concave, like a watch-crystal, as in fig. 4. If you can manage to get a small glass tube with the bore no larger than a knitting-needle and put one end in water or milk, you will find the liquid to rise just as it did between the glass plates. As all can not readily get glass tubes, I give an engraving, fig. 5, to show how it does in tubes of different sizes. The smaller the tube, the higher the liquid will rise. If we draw down the tubes, as we



Fig. 5.—SMALL TUBES.

readily can by softening them in a gas flame, so that they will be as thin as a hair, liquids will rise in them to the height of several inches. This was first noticed in small tubes, and the force which causes the liquid to rise was called *capillary attraction*, from the Latin *capillus*, a hair. We have already seen, in the case of the window-glass (fig. 2), that this rising of a liquid between surfaces is not confined to hair-like or any other tubes, but the old name is still used to express this attraction of surfaces for liquids. Now let us see that this curious effect is not confined to flat plates like the window-glass, nor to curved surfaces like tubes. If you have an old lamp-chimney,

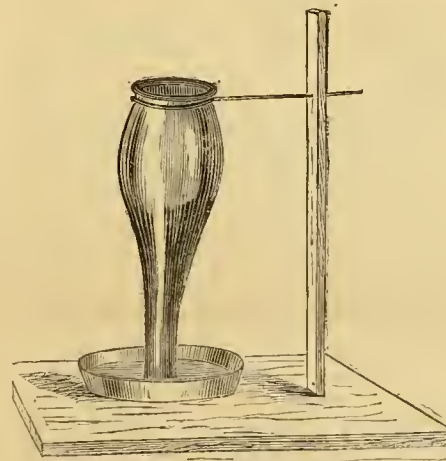


Fig. 6.—LAMP-CHIMNEY FILLED WITH EARTH.

you can make an interesting experiment. Tie over one end a piece of cloth of any kind, and then nearly fill the chimney with perfectly dry earth. For this purpose put some earth in a pan under the stove for a day or two, and when it is perfectly dry put it into the chimney and shake it down so that it will be well packed together. Now contrive some way to hold the chimney upright and have its lower end rest in a saucer, as in figure 6. Pour a little water into the saucer, and wait; soon the water will be all gone, and more must be put in. Look at the

earth in the chimney; a dark portion shows that it has been wet by the rising of the water, and if you continue to supply sufficient water to the saucer all the dry earth will be moistened. I can only just mention what an important thing this capillary attraction is. You will readily see that the earth in the fields and garden acts just as that in the lamp-chimney, and when the surface moisture is taken up by plants or dried up by the hot sun, how more comes up from below to feed the plants. I could give many other illustrations of capillary attraction, and you have doubtless long ago thought how the melted tallow rose in the candle-wick. The wick, with its many threads and fibers, may be looked upon as a bundle of small tubes, and it is just the thing for taking up liquids. The wick in an oil or other lamp shows the force of capillary attraction in a more striking manner than does the wick of a candle, as the oil is often some inches below the place where it is to be burned, and it has to rise all this distance through the wick. But I have taken so long in trying to show you how the melted tallow rises through the short bit of wick to the place of burning, that I shall have to wait until another time before I try to describe the candle-flame. THE DOCTOR.

Something to Try at.—Take a piece of stiff paper 2½ inches long and 1 and a half inch wide, and cut it in such a manner that you can put your head through it. It is very easy if you only hit upon the right way of doing it.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

(An easy one.)

I am composed of 6 letters.
My 1, 2, 3 is run by steam.
My 4, 5, 6 is what many a little dog is.
My 3, 2, 6 is a small animal.
My 1, 2, 6 is its enemy.
My 4, 5, 2 is a vegetable.
My 4, 5, 2, 3 is a fruit.
My 6, 5, 2 is what many take for breakfast.
My whole is necessary about a well-furnished room.

MAGGIE ASHLEY.

ARITHMORES.

- | | |
|----------------------|-------------------|
| 1. 7250500100250. | 4. 1000500100. |
| 2. 8025010025015250. | 5. 5009100150250. |
| 3. 50010080150. | 6. 20001000250. |

JOHN BRIGHT.

ANAGRAMS.

- | | |
|-------------------------|-------------------|
| 1. Soft ones. | 6. Ma sad! Queer! |
| 2. No acute lad, I. | 7. So share toys. |
| 3. Rags oppress H. | 8. Ice toys. |
| 4. Run, see our bats. | 9. Ned lost ace. |
| 5. That is nice, Ma'am. | 10. I free corn. |

CROSS-WORD.

My first is in flower but not in bush.
My next is in shove but not in push.
My third is in many but not in all.
My fourth is in boat, but not in yawl.
My fifth is in lion but not in brute.
And my whole is a well-known tropical fruit.

MARY JACOBS.

BLANKS.

(Fill the blanks with words pronounced alike but spelled differently.)

- The farmer made a — face at the prospect of his crop of —.
- The man inhaled the fumes from the —, and they say he will —.
- I went to the —, and the — was very low.
- He — the — racing through the forest.
- I gave her a — and she gave me a quantity of — for it.
- Nobody — how he broke his —.

E. M. BROWN.

PUZZLE.

A VOWEL'S VOW.

A simple, honest vowel, as I go,
What faults my jealous rivals in me find!
One calls me (1) dumb; one sneers (2), too slow!
That often called, as oft (3) I lag behind;
Though not in word, yet covertly in sound,
By one (4) a falsifier I am found,
Or (5) idle gossip, and worse than that,
When in the vein, I (6) whine and (7) scratch like cat!
I vow this perverse alphabet I'll (8) leave,
Unless more courtly treatment I receive.

TEMP.

AMPUTATIONS.

- Behold a Bible name (five letters), transpose, and leave another.
- Behold one insect and leave another.
- Curtail a mineral and leave a thorn.
- Curtail a flower and leave a servant.
- Curtail a fabulous being and leave a small box.



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TYING GRANDPA'S SHOES.—Drawn and Engraved for the American Agriculturist.

6. Behead a bird and leave a coin.
 7. Behead a military cloak and leave a gum.
 8. Behead a bird, traupose, and leave a tyrant.

ANSWERS TO PUZZLES IN THE DECEMBER NUMBER.

NUMERICAL ENIGMA.—Poeket lanterns.

PL.— A genial moment oft has given
 What years of toil and pain,
 Of long industrious toil, have striven
 To win, and all in vain.

ANAGRAMS.—1. Symmetrical. 2. Fundamental. 3. Undiminished. 4. Tendencies. 5. Astonishment. 6. Contrivances. 7. Apprenticeship. 8. Boundaries. 9. Intriguer. 10. Deliverance.

SQUARE WORD.— GLOBE
 LEFER
 OPERA
 BERGS
 ERASE

HOUB-GLASS PUZZLE.
 INNOCENCE
 BREEZES
 BERRY
 ITS
 A
 TIN
 BANKS
 BUILDER
 CANDYTUFT

GEOGRAPHICAL OPPOSITES.—1. Newcastle. 2. Haron.
 3. Warsaw. 4. Waterloo. 5. Champlain. 6. Farewell.

7. Havana. 8. Martha's Vineyard. 9. Horseshoe Waterfall.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

Don't forget, when sending puzzles, etc., to specify whether they are for the *Agriculturist* or for *HEARTH AND HOME*.

E. S. B. Your nicely written contributions are always gratefully received.

EDDIE F. G. We have more "cross-words" and "numerical enigmas" than we shall ever use, but their construction amuses the dear children, and I often say "thank you" for puzzles which I never mean to use.

S. G. T. You ask me to "excuse pencil."—If you have a very good reason for using it instead of ink, I will excuse it, otherwise I'd rather not.

Thanks for letters and puzzles, to Robt. W. M., Helen L. M., Lincoln H. H., Wm. L. E. Jr., A. Savinno, O. A. Gage, Mary A. E., S. M. W., and Geo. T. White.

Tying Grandpa's Shoes.

You all smile when you see this picture—and no wonder, as there is nothing so "catching" as moods. Did you ever notice how one cross boy or girl would spoil the enjoyment of a party, or destroy the happiness of a family? If one is cross, others are very apt to be made so, for we are all very dependent upon one another in this matter. But there is one comfort: if R-nature is "catching," good-nature is just a little more so. Do you not know some boys or girls who are sure to bring sunshine wherever they go? And have you found this to be confined to

boys and girls? Are there not some old people whose presence is as bright as the day, and to be near whom makes one happier and better? We have, and surely our artist has, or he never could have drawn such a darling old Grandpa. He is many, many years older than the children, but the light of love shines from his dear old face and is reflected in the countenances of the little ones. How nicely the picture tells its story! The room is in one of those old houses in which grandfather was born, or which, in his younger days, he built. The quaint old mantel-piece, the wood fire, and the general air of comfort are perfectly home-like. Grandfather has evidently given up hard work to the son, the father of the children, but he must still do some "chores." The old gentleman likes to read his paper by the cosy fireside, but there is the old horse, which no one can care for so well as he, and perhaps the hired man will not properly care for the other animals, and grandpa must every afternoon go out to "see to things." When he puts off his slippers, it is a signal to Charlie and Bessie, who run for the heavy shoes. They don't like that grandpa should stoop, for they have heard him speak of a "crick in his back;" they don't exactly know what that means, but have no doubt that it is something that grandpa should be saved from. In their hurry these grandchildren sometimes get the right shoe upon the wrong foot, but at last it is all right, and then comes the lacing up. While the children mean to help the dear old man, they must have some fun, so they run a race to see which shall get the shoe ready first. Don't they all enjoy it? Grandfather looks ready to cheer the victor, and to comfort the one who is beaten, while either child don't mind being beaten—that is, not much, if grandpa's shoes are all right.

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Having used for many months the kind of wringer mentioned above, we fully indorse all that is said of it by our New England contemporary.—*Editors of Scientific American.*

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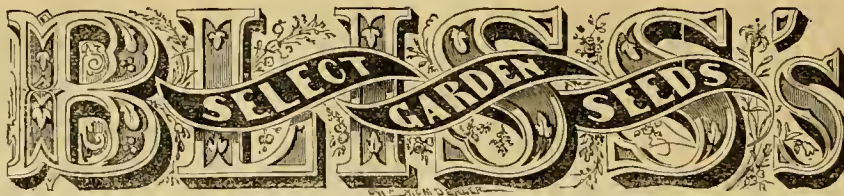
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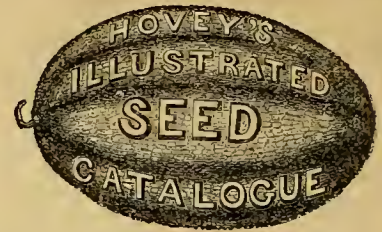
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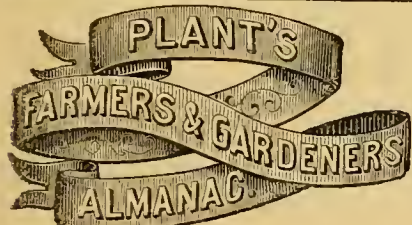
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CHAPTER IX.—How to Catch the Raccoon.
CHAPTER X.—How to Hunt and Trap the Bear.
CHAPTER XI.—How to Hunt and Trap the Wolf.
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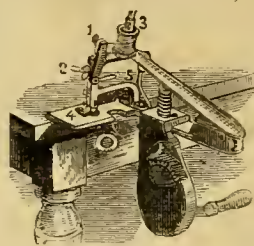
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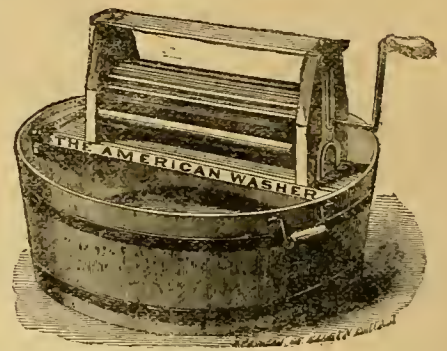
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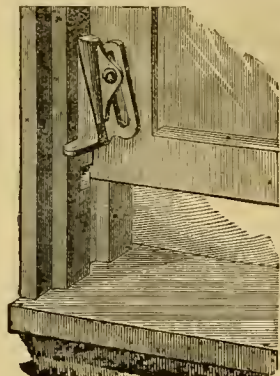
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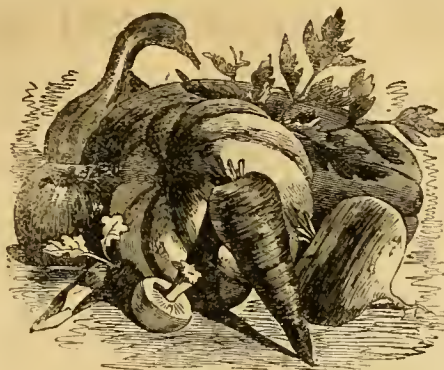
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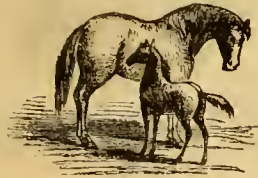
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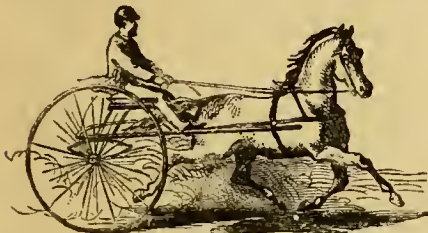
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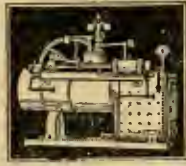
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mestic animal. If all breeders and farmers would follow
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showing the peculiarities of each, and the relative ad-
vantages to the producer.

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		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
1	S	6:30	5:50	9 9	6:31	5:52	9 9	6:33	5:53	9 9
2	M	6:30	5:51	10 23	6:32	5:53	10 20	6:33	5:54	10 17
3	T	6:30	5:52	11 33	6:33	5:54	11 29	6:34	5:55	11 25
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9	M	6:23	6:00	4 47	6:22	6:00	4 40	6:21	6:01	4 34
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12	T	6:17	6:03	8 04	6:16	6:03	8 00	6:15	6:04	8 03
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PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.	CHICAGO.
1st Quart	D. H. M.	H. M.	H. M.	H. M.	H. M.
Full M'n	14 1 0 m.	0 48 m.	0 35 m.	0 24 m.	11 54 13h
3d Quart	21 5 36 ev.	5 24 ev.	5 12 ev.	5 0 ev.	4 30 ev.
New M'n	28 8 10 m.	7 58 m.	7 46 m.	7 34 m.	7 4 m.

AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1873.

Spring is nominally here. The field labors of the year will soon commence, and we should see that everything is ready for energetic, systematic work. How to make money by farming is the great question. There are two ways of getting rich. One is to spend less than you earn; and the other is to earn more than you spend. It may be thought that this is a distinction without a difference; but such is not the case. The farmer who aims to save 50 cents out of every dollar he gets is a very different man from the farmer who aims to get \$1.50 instead of \$1.00. One saves just as much money as the other. But the latter has just twice as much to spend as the former. And it will make quite a difference to a farmer and to his family, and to the community in which he lives, whether he spends \$500 or \$1,000 a year; or still more whether he spends \$2,000 instead of \$1,000. The distinction we make, therefore, is one worth considering. We believe in economy; but we believe still more in work. When John Johnston was plowing one hot day in his summer-fallow, a butcher came to buy some cattle. Mr. J. told him his price and then started the horses, and the butcher walked by his side. He was very fat, and the land was soft and mellow, and the perspiration soon burst from every pore. By the time he got to the end of the field, he was willing to "split the difference." Mr. J. turned in again, and the butcher still walked by his side. When they got back to the starting point, Mr. J. put in the plow again and started the horses. "Hold on, Johnston," exclaimed the butcher, "I'll take um; I would not walk up and down that field again for double the money." Here is a man who knew his own mind—knew what his cattle were worth; and above all he knew the value of time. He knew that a man and team were worth 30 cents an hour. He knew that if he stopped and went home with the butcher the men working in the field would be likely to do less work while he was gone. An hour's idle talk would probably have cost him 50 cents. He was determined to save this 50 cents and run the risk of the butcher not giving what the

cattle were worth. And this affords one reason why Mr. Johnston has lived in great comfort, brought up a large family, and made over one hundred thousand dollars by farming.

Hints about Work.

Make up your mind what you intend to do. Sit down and count the cost. Do not undertake more than you can perform. It is unwise to commence work that you are not able to finish in due season. Many a farmer loses more by getting behindhand with his spring work than would buy another team, and pay the wages of a man for a year. This has, at any rate, been true more than once in our own experience. Have you not found it so?

What then shall we do?—Shall we buy more horses and hire more men? Not if we can help it. It would probably be better to plow less land. This is a point each farmer must decide for himself. All we can say is, do not get behindhand with your work. Almost anything is better than this.

The Seasons do not Change.—We are quite apt to blame the weather. And yet it is a matter of fact that there is no change in our climate. There have always been wet years and cold years and years of great drouth. We should be prepared for them.

Underdraining on all wet soils is indispensable to real success in farming. A well-drained and well-worked heavy soil is rarely affected by drouth. Every enterprising farmer will do more or less draining every spring. If he once commences to underdrain, and does the work well, he will not be likely to stop until he has made all his land dry.

Top-dressing Grass-Land is a grand means of ameliorating the effect of drouth. Spread the manure as early as possible in the spring, and if you have a Thomas harrow use it freely to break up the manure.

Go over the Farm as soon as the snow melts in the spring. You will see many things that need to be done. Make a note of them and prepare to do them at the right time.

Let off Surface Water.—This is always in order. Farmers will let it off wheat, but very few ever think of letting it off a bare stubble. If there is no crop to kill, they think it can do no harm. A few hours' judicious labor will often let off more water in a day than the sun at this season can evaporate in a month.

Make your Walks Dry.—Put down planks or boards if necessary; but it is far better to get the water off. You can do this if you attend to the matter before the water soaks into the ground.

Irrigating Grass-Land at this season is a capital thing, provided the land rests on a dry porous subsoil or is underdrained. But irrigating low, wet land will do no good. Better get off all the water you can, instead of getting more on to it.

Drain first, and then Irrigate.—This will double or treble your grass crop and not injure the quality. There are many streams that might be easily dammed up and the water diverted over acres of grass-land at a small cost. It is a mistake to suppose that irrigation is only necessary in dry weather. It does great good on grass-land early in the spring. Try it.

Sow Grass and Clover Seed on Wheat early in the spring, unless you propose to harrow the wheat. It is seldom that the seed is injured by the frost. Do not spare the seed, and be careful not to miss any land.

Plaster may be sown at any time when most convenient—from one to two bushels per acre is enough. It will do no good on low, wet land.

Repair the Fences.—This can be done at times when other work is not pressing—say after a rain, when the ground is too wet to plow.

Piling Manure should be done, if done at all, early in the spring. Many farmers prefer to draw their manure out of the yards directly on to the land. We will not argue the question here. All we say is, do something with the manure. Either use it

Early Plowing for Wheat.—"A. S.,"

Tipton, Center Co., Pa., writes us that last season he plowed a strip of land in May, for "fallow," but, on a neighbor saying that the sun would burn the substance out of the soil, he stopped plowing until it was time to get the ground ready for the fall sowing, when the rest of the field was plowed and sown. When the wheat was reaped, the early-plowed ground yielded a good crop, equal to 20 bushels per acre, while the rest yielded only 5 bushels. He believes now in "fallows."

now or keep it for future use. Do not leave it spread out all over the yards and premises.

Plowing should not be done while the land is wet. Much, however, depends on the kind of soil, and whether it was fall-plowed or whether it is sod. The latter always seems drier than the former. As a rule, it may be said that no land should be plowed when it sticks to a bright steel mold-board.

Three-horse Teams should always be used whenever practicable. They are far more effective than two horses. One man can manage three horses as well as two, and will accomplish half as much again work. For plowing, harrowing, rolling, cultivating, drawing off heavy stones on a stone-boat, and for drawing heavy loads on a wagon, there is great economy in using three horses.

Good Implements.—Great loss is incurred on many farms by using poor implements and tools. The higher wages are, the more important it is to economize labor. A good plow, as compared with a poor one, will more than pay for itself in a week's work.

Harrows should be made heavy enough for three horses and should take a wide sweep. The old 32-teeth drags are behind the age. Get a good Scotch barrow with 40 teeth and keep the teeth sharp. We seldom harrow our land enough.

Rollers are best made of plank and in two sections. Keep the plank saturated with petroleum. They will last as long again. Do not neglect to oil the journals.

A Cultivator for Three or Four Horses abreast is a very effective implement. The great trouble with them is that they are rarely strong enough, and the teeth are usually too wide and do not slant enough forward. At this season we want them to stir the land—not to cut off weeds.

Grain-Drills Pay.—Except that they lack a steering apparatus, our drills are the best in the world.

Stone-Boats are very handy for other purposes besides drawing off stones. Always take one with you to the field—and have on it a spade, an axe, a spade, a hammer, a monkey-wrench, and a box of nails, bolts, etc. Keep the bottom of the boat saturated with petroleum.

Petroleum we find almost indispensable. We keep a barrel of it always on hand, and use it freely on all tools, implements, wagons, etc. Try it.

The Cellar.—Whatever you do or fail to do, do not neglect the cellar under the house. Remove everything that is decaying. Clean up. White-wash the walls. Ventilate thoroughly and often.

The Principal Work of the Month in this latitude, is to get ready for sowing and planting in April and May. See that the seed is ready, the implements in order, the harness well oiled and repaired, and the horses in good condition for hard work.

Cutting Fodder.—If you do this by horse-power, cut up enough now to last for several months and stow it away.

Things You should Always have on Hand. Some of these cold mornings, a cow will calve. You tell your man to "give her a warm bran-mash." "But," he replies, "we are out of bran." This should not be. Bran is one of the things that should always be on hand. Salt is another. And so is flaxseed. Unless you are within easy distance of a drug-store, it is well to keep a few common medicines on hand—such as salts, aloes, rhubarb, gentian, ginger, and landanum. Keep them under lock and key. A syringe for giving injections should always be kept—and kept in order. A slight attack of colic can often be cured by an injection of warm water and soap.

Hot Water.—Blessed is the farmer who at this season can always be sure of getting a gallon or two of hot water whenever he wants it. This is a luxury few farmers appreciate until they have to depend on "hired help" in the kitchen.

Hay-Tea is made by pouring boiling water on to chaffed hay. Clover is best. It is an excellent tonic for all animals.

"Corn-Pudding" is easily made by stirring corn-meal into boiling water. A quart or two of this

hot "pudding" put into a pail of skimmed milk and well mixed, is grand food for young pigs that you wish to push forward rapidly.

Horses.—If they have been fed on straw during the winter, it is now time to give them a little hay or more grain. Work very moderately at first and especially avoid fast driving. Get the horses into good condition. To do this, work regularly, feed liberally, and groom thoroughly. Give a tablespoonful of salt to each horse every day for a week, and then after that give the horses every day *all the salt they will eat*. The only reason that animals eat more salt than is good for them is because they have not access to it at all times. At this season horses are changing their coats and are quite liable to catch cold. Be careful to blanket them when they have to stand exposed to the wind.

Cows.—See Hints for last month. At calving-time keep the cow quiet. Be on hand to render assistance if necessary, but do not be hasty. Pull only when the cow strains and pull downwards. Draw out all the milk from the udder. Some farmers give it to the cow. We think a bran-mash is better. Give the cow all the water she will drink, but take the chill off. Hay-tea is excellent. If the cow is much exhausted put a blanket over her and keep her as quiet and comfortable as possible. For a week or two before calving, keep the bowels open. This can usually be done by giving bran-mashes or linseed tea. And unless the cow is in very high condition this will be better than to give medicine, but the latter must be resorted to if necessary. The bowels must be kept open. Epsom or Glauber salts are the best—say from 4oz. to one lb., according to circumstances. Always give some ginger or other tonic with the salts.

Sheep.—Clean out the sheds or pens. Nothing is so bad for sheep as to compel them to stand or lie upon fermenting manure. They will do better in the mud even than on fermenting manure. Both, however, are bad. Give a little fresh straw for bedding every day—just enough to keep the sheep dry and comfortable. At this season the flock-master needs to exercise all his vigilance, energy, and best judgment. In our changeable climate it is no easy matter to carry a large flock of sheep through this month and the next. A great point is to have several apartments and to grade and feed the sheep according to their condition. But avoid sudden changes in feeding. For breeding stock, clover hay, bran, and roots are better than grain. See Hints for last month.

Ewes Heavy in Lamb should be allowed plenty of exercise, but they must not be driven through drifts of snow, or allowed to slip on ice, or jump fences or ditches; and especially avoid crowding at doors or gates. Treat them gently. If for any reason you have to catch a ewe do not frighten her, and if possible do not turn her up on her back.

At Lambing Time have plenty of separate pens for the ewes and lambs. Let them be warm and well-ventilated, and above all let them be dry. If all goes right, if the ewes are healthy and the lambs strong, there is no trouble; but there is no greater test of skill, patience, good judgment, and ingenuity, than to have a number of weak lambs come during wet cold weather in the early spring. A few little lamb-blankets made of flannel and tied on with tape will be found very convenient. See that the lambs suckle frequently. This must be attended to. There is no chance for the lamb if it does not get plenty of milk.

Early Lambs Fattening for the Butcher should be allowed anything and everything they will eat in little troughs, placed where the lambs can, but the ewes can not get at them. Bran, oatmeal, oats, oil-cake, corn-meal, and sliced Swede turnips or mangels, are all good—those are best of which the lambs will eat the most. At two weeks old a lamb will generally commence to eat a little bran with its mother, and after that it should be encouraged to eat as much as possible. Feed the ewes well, and see that they have plenty of water. A few roots for the ewes are of great value. Feed plenty of bran and clover hay.

Swine.—Keep the pens clean and dry. See that they are well ventilated.

Young Pigs should be fed all they will eat and digest. Nothing is better for them than corn-pudding and milk. As the pigs get older and the weather warmer, corn-meal, soaked for 12 or 24 hours in cold water, may take the place of the "pudding."

Breeding Sows should have as much exercise as possible. Do not keep more than three or four in a pen. And a week or so before farrowing put the sow by herself in a warm pen. Feed plenty of bran. If the bowels are not loose, give some Glauber's-salt in the food, say a teaspoonful at each meal until it effects the object. If the sow is poor and weak, boiled linseed or oil-cake will be better than the salts. If the sow is quiet and you can be with her at farrowing, throw a blanket over her and keep the little pigs under it while they are sucking. The heat from the sow will keep them warm, and they will soon be strong enough to take care of themselves. Give the sow bran-mashes, and put in a little salt, say half a teaspoonful once a day. The more warm water and bran she will take, the better. In three or four days give a little meal with the bran, and gradually increase the quantity as the sow gives more milk. At two weeks old the little pigs will begin to eat, and should have a trough separate from the sow.

Work in the Horticultural Departments.

The snow, which at the North has covered the ground during the greater part of the winter, has proved an excellent mulch, and when spring opens the ground will be in fine condition for working. This in the latitude of New York sometimes happens as early as the middle of this month. We may say to our many new readers that these hints about work are not offered as a "Calendar of Operations" to be blindly followed, as it would be impossible to give directions to meet the wants of cultivators in all parts of a country where the climate varies from almost tropical to where the winters are nearly six months long. If farmers were only aware of the benefit arising from a good vegetable and fruit garden, very few would be willing to do without them. We have known wealthy farmers who preferred to buy their vegetables and fruit rather than to take the trouble of raising them. If farmers could enjoy a fresh and varied supply of vegetables for one season, they would not, we believe, forego this luxury, especially when the expense necessary to keep a garden well cultivated and stocked with the best varieties of vegetables is comparatively small. The varieties of vegetables which are best approved are mentioned from time to time in this Department, and there is a list given on page 62 of the February *Agriculturist* in which select sorts are named. Novelties should not be relied upon for a main crop, as where one proves valuable ten at least are worthless, or at most no better than well-known and older varieties.

Orchard and Nursery.

Grafting may be done the last of this month in many places, but in this latitude it is best to wait until April.

Cions.—Cut when the trees are not frozen. Order any new varieties which can not be had in the neighborhood early, so that they may be on hand before the buds have commenced to swell. Many nurserymen now offer cions at reasonable rates, and if one has a lot of trees which bear only poor fruit, grafting is a very quick and easy way of getting standard sorts. The process has often been explained in the *Agriculturist*, and any one with a little skill and practice will be able to perform the operation successfully. Cherry and Plum stocks should be grafted very early, as they commence growing soon after the frost is out of the ground.

Girdled Trees.—The quantity of snow has been so great this winter that young trees have been in many localities badly girdled by rabbits and mice. The best way of treating trees injured in this way

is to make several incisions, both above and below the wound, with a chisel, and connect the two cuts by means of twigs of the same sort, placing, as in grafting, the inner bark of the twig in contact with the inner bark of the tree; then cover with grafting-clay or cloth dipped in liquid grafting wax. Trees treated in this way will usually recover, as the twigs form a means of conveying the sap from the roots to the branches.

Plant all fruit-trees as soon as the condition of the ground and weather will permit, and cut back the branches at least one third; it insures an earlier and more thrifty growth. Directions for treating and planting young trees were given last month.

Insects.—Treat as advised last month.

Trees.—If not already ordered, attend to it at once, as to be healthy, trees must have well-ripened wood, and our seasons are none too long at the best to secure this end.

Wash.—An orchard of young trees is greatly benefited by a wash of very strong soft-soap suds, or a solution of sal soda applied with a whitewash brush; it removes many eggs of insects, moss, and improves the looks of the trees generally.

Fruit Garden.

Many directions given for the orchard and nursery apply equally well here, especially as to planting and looking out for insects.

Grape-Vines.—Prune vines which were neglected in the fall, and cut away the extra buds which were left to guard against injury by cold weather during the winter before the sap starts.

Trellises.—If these have not already been prepared, look after them at once, and set the posts as soon as the ground becomes settled.

Strawberries.—It is none too soon to prepare the ground for new beds, and by the last of March set the plants. A good plan is to set the plants in beds five feet wide, making three rows to the bed, and the rows twenty inches apart; set the plants one foot apart in the rows. Where several sorts are grown, provide durable labels so that no confusion may arise. The sorts are so numerous that each one must be governed somewhat in his selection by the soil and the varieties which succeed in his locality.

Currant and Gooseberry cuttings set last season will now have rooted, and the young bushes need transplanting; this should be done at once, taking care to give plenty of manure.

Raspberries and Blackberries when set out must have the canes cut back nearly to the ground, so that the plants need not be weakened by bearing fruit the first season. Tie up to stakes or wire trellises all which are to fruit this season.

Kitchen Garden.

Hot-Beds.—Prepare six weeks earlier than the time when it will be safe to set out the plants. Directions have often been given. When the heat has subsided to 90°, seeds may be sown; they may be sown in a bed of fine soil placed upon the manure, or, what is better, where only a few of a variety are wanted, sown in earth in shallow boxes, and these placed in the hot-bed. Give air on mild days, and water when the soil becomes dry. During cold nights cover with straw mats or shutters to keep out frost. See article on page 103.

Window-Boxes.—Plants may be successfully raised in these, where only a few are required for early crops, and are often more convenient than a hot-bed.

Artichoke.—Plant seeds of Green Globe in hot-bed, and set out the plants when large enough to handle in rows three feet apart and plants two feet. The parts used as food are the thick fleshy scales of the flowers. Plantations are also made by putting out the offsets from old plants.

Asparagus.—Apply a good dressing of manure to the old beds if neglected in the fall. Set out new beds of one or two-year-old plants. Set the plants

three feet by two. Conover's or Van Sieleu's Colossal is the best.

Beans must not be planted until all danger of frost is over. Sow the bush sorts in rows two feet apart. Valentine and Dwarf Wax are both good family varieties.

Beets may be sown as soon as the ground can be worked, as they will bear considerable frost without injury. Sow in drills one foot apart. New Egyptian Blood is the best early red sort; Bassano is earlier, but light-colored.

Broccoli.—Sow White or Purple Cape the same as cabbages.

Cabbage.—Sow Early Wakefield, Early York, and Winningstadt for early in hot-bed or cold-frame. Plants wintered in the cold-frame may be set out as soon as the ground will allow.

Cauliflower, in order to grow successfully, must be started very early, and complete its growth before the hot weather of summer appears. Sow Early Paris and Early Dwarf Erfurt, as recommended for cabbages.

Carrots may be sown in drills one foot apart as soon as the ground can be worked. Early Horn is the best early.

Celery.—Sow Boston Market and Dwarf White Solid, as directed on page 103.

Corn must not be planted until warmer weather. Procure seeds in time. Crosby's Early, Moore's Concord, and Mexican are all good early sorts.

Cress, or Peppergrass, must be sown very early in shallow drills one foot apart in the open ground. Curled is best.

Cucumbers.—A few seeds may be sown in pots or on pieces of turf in the hot-bed, to transplant when the weather is warm enough. Early Russian and White Spine are reliable sorts.

Egg-Plants.—In hot-beds, the seeds as well as those of peppers need more heat than other vegetables. Improved New York Purple and Black Pekin are the leading sorts.

Horse-Radish.—Plant sets in well-manured trenches two feet apart.

Kale.—Hoe the plants set out in the fall, and keep the soil stirred often, to prevent weeds.

Kohl-Rabi.—Sow in a frame, or when the weather will allow in the open ground in rows two feet apart. Early White is best.

Leek.—Sow early in open ground in rows 18 inches apart. Flag and Musselburgh are good sorts.

Lettuce.—Set out plants from the cold-frame, and sow seed for a succession. Curled Silcisa and Tennis-Ball are popular.

Melons must be treated the same as cucumbers. Ward's Nectar, Skillman's Netted, and Cassaba are excellent varieties.

Onions.—Sow very early in drills 15 inches apart. Early Red and Yellow Danvers for general crop. Plant out sets, potato and top onions for early.

Parsley.—Soak the seeds, and sow the Curled variety in the hot-bed.

Parsnips.—Sow seeds of Hollow Crown in 18-inch drills. Dig those left in the ground over the winter before growth starts.

Pears.—Plant double rows of Carter's First Crop, Daniel O'Rourke, for early, and Little Gem later.

Peppers.—Sow in hot-bed Squash and Sweet Mountain for stuffing.

Potatoes.—A few may be started for very early in hot-bed. Do not plant in open ground too early, as they will not grow until the soil becomes warm. Sprouting may be hastened by cutting and bringing into a warm room a few days before planting.

Radishes.—Sow in rows one foot apart in open ground every week or ten days for a succession. Olive-shaped, Early Scarlet Turnip, and French Breakfast are good varieties.

Rhubarb.—Dig in plenty of manure around the roots, and if wanted very early put a half-barrel with the heads removed over a plant, then heap a plenty of stable-manure around the barrel, which

should be covered at night. The rhubarb will soon be fit to cut.

Salsify.—Dig any left in the ground over winter. Sow seeds early the same as for parsnips.

Scorzonera is much like salsify, and needs the same treatment.

Spinach should be uncovered and hoed; it will be ready to cut in a week or two. Sow seed of Round-leaved in rows one foot apart in rich soil.

Sorrel.—This excellent vegetable ought to be better known. Sow the seeds in the open ground or in hot-bed, and transplant to rows one foot apart, setting the plants one foot apart in the rows.

Squashes.—Summer Crookneck is the best early sort. Sow seeds upon sods which may be set in hills four feet apart each way after all danger from frost is over.

Tomato.—Sow in hot-bed or window-boxes as recommended for egg-plants. Trophy is excellent, and several new sorts are offered.

Turnips.—Flat Dutch may be sown for early, and Red and White Strapleaf for later.

Seeds.—Have all seeds likely to be needed ready for immediate use. Roots from which seeds are to be grown should be set out early. Draw the earth well up around the crowns to prevent freezing; the earth can afterwards be removed.

Flower-Garden and Lawn.

Roads, in order to be valuable, must be passable at all times, and in order to make them so it is necessary to excavate to the depth of two or three feet, and fill in with large stones, gradually diminishing as the surface is reached, and finish off with gravel. The roads should be slightly rounding, so that the water will not settle in spots. A road made in the above manner will help drain the land.

Lawns.—Clear up all sticks and litter which have accumulated during the winter, and if the grass has been winter-killed, rake in fresh seed as soon as the frost has disappeared.

Perennials should be moved early before they have commenced their growth. They ought to be taken up and divided every three or four years.

Shrubs.—Prune all those which need it before they start into growth.

Climbers.—Provide plenty of climbers for covering trellises and arbors. Clematis, Virginia Creeper, Akebia, and many other plants are well suited for this purpose.

Annuals.—Sow seeds in hot-bed or window-boxes of such sorts as need a long season to perfect them. A few of the hardier sorts may be planted in the open ground the latter part of the month.

Greenhouse and Window Plants.

At this season the greenhouse should be looking gay with the numerous flowers which are now in season. Many flowers become injured if water falls upon them; such should be removed at once, together with such leaves and flowers as drop off. Neatness is highly important in a greenhouse, and too much care can not be taken to keep it in proper order.

Propagation.—A large supply of plants should be propagated ready for use in the open ground.

Azaleas just coming into bloom must be placed so that the flowers will not be injured by the drip.

Dahlias.—Place a few tubers in the propagating-house, where they will start early, and when the sprouts are two or three inches long, cut off and pot in well-manured soil.

Bulbs.—Dry off those which have already flowered, and store in a dry place for another year.

Commercial Matters—Market Prices.

Gold has been as low as 112½, and as high as 114½—closing Feb. 13th at 114½, as against 112½ on Jan. 13th. The Breadstuf trade has been less active, especially toward the close. Flour and Wheat advanced early in the month under review, but wound up tamely and heavily, with more eagerness apparent on the part of

holders to realize. Corn closed steady, with a fair inquiry, especially for sound lots of mixed Western. Rye and Barley held above the views of buyers, checking business. Oats in good request and strong in price. The extreme scarcity of ocean freight-room checked the export movement in Breadstuffs and Provisions. Cotton closed lower and irregular, influenced by the large arrivals at the shipping ports. Wool has been in very limited demand for all purposes at easier and yielding prices. Tobacco, Hay, and Hops, steady, but less freely dealt in. Provisions more generally inquired for, particularly hog products, but at variable figures. Seeds closed dull and weak.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending February 13th, 1873, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

Receipts.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's m'th.	165,000	413,000	427,000	1,450	95,000	508,000
26 d's last m'th.	155,000	2,235,000	1,380,000	28,000	661,000	821,000
Sales.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's m'th.	316,000	1,254,000	1,975,000	18,000	490,000	1,327,000
26 d's last m'th.	263,000	1,305,000	1,814,000	31,000	273,000	1,109,000

2. Comparison with same period at this time last year.

Receipts.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 days 1873.	165,000	413,000	427,000	1,450	95,000	508,000
26 days 1872.	155,000	2,207,000	915,000	1,800	203,000	397,000
Sales.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's 1873.	316,000	1,254,000	1,975,000	18,000	490,000	1,327,000
26 d's 1872.	205,000	1,305,000	1,814,000	31,000	273,000	1,109,000

3. Stock of grain in store at New York.

	Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.
	bush.	bush.	bush.	bush.	bush.	bush.
Feb. 10, 1873.	805,561	3,189,195	39,580	468,331	959,134	173,100
Jan. 14, 1873.	1,177,859	4,715,561	44,039	571,051	1,367,187	175,805
Dec. 9, 1872.	1,303,975	5,475,139	51,685	624,554	1,698,865	215,326

4. Exports from New York, Jan. 1 to Feb. 12:

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Peas.
	bbls.	bush.	bush.	bush.	bush.	bush.	bush.
1873.	705,286	2,004,369		6,700	2,560	6,158	
1872.	836,639	2,078,208		70,603	2,632	38,864	

CURRENT WHOLESALE PRICES.

	Jan. 13.	Feb. 13.
PRICE OF GOLD.	112 1/2	114 1/2
Flour—Super to Extra State	\$3.95 @ 4.00	\$4.25 @ 4.30
Super to Extra Southern	8 1/2 @ 12 1/2	6 1/2 @ 8 30
Extra Western	7 10 @ 13 00	7 20 @ 13 00
Super Genesee	8 10 @ 10 25	8 35 @ 10 50
Superline Western	5 35 @ 6 50	6 25 @ 7 00
RYE FLOUR	4 50 @ 5 50	4 75 @ 6 30
CORN MEAL	4 25 @ 5 00	4 50 @ 5 25
BUCKWHEAT FLOUR—No 100	3 60 @ 3 90	3 60 @ 3 95
WHEAT—All kinds of White	1 80 @ 2 15	1 85 @ 2 35
All kinds of Red and Amber	1 40 @ 2 00	1 50 @ 2 05
Fixed	67 @ 69	65 1/2 @ 67
WHEAT—Western	63 1/2 @ 67	63 1/2 @ 66 1/2
State	52 @ 55	52 @ 57
RYE	93 @ 97	93 @ 95
BARLEY	85 @ 118	75 @ 125
RYE—Bale, No 100	1 15 @ 1 75	1 10 @ 1 65
THAW, No 100	85 @ 1 30	75 @ 1 35
ORTON—Middlebys	20 1/2 @ 21 1/2	21 @ 21 1/2
OPS—Crop of 1872	42 @ 55	42 @ 55
EATHERS—Live Geese	50 @ 75	50 @ 75
RED—Clover	9 @ 9 1/2	9 1/2 @ 10
linothy, bushel	3 25 @ 3 75	3 70 @ 4 00
RYE, bushel	2 00 @ 2 10	2 15 @ 2 25
RYE—Red & Grocery	8 1/2 @ 11 1/2	8 1/2 @ 11
OLASAKS, Cuba, gal.	17 @ 18	18 @ 35
ew Orleans, gal	55 @ 70	55 @ 75
OFFICE—No (Gold)	16 @ 19 1/2	17 1/2 @ 20 1/2
ONACCO, Kentucky, &c.	9 @ 16	9 @ 16
lent, &c.	8 @ 50	8 @ 50
Foot—Domestic Piece	60 @ 75	60 @ 75
omestic, pulled	45 @ 68	40 @ 65
ifornia, clip	20 @ 45	23 @ 45
ALLOW, &c.	8 @ 8 1/2	8 1/2 @ 9
IL-Case—No ton	38 00 @ 40 00	39 00 @ 40 00
ER—Mess, barrel	13 50 @ 14 00	14 50 @ 15
ing, barrel	11 00 @ 11 50	11 00 @ 11 37 1/2
RYE—Plum mess.	10 00 @ 12 00	9 50 @ 11 75
and, in tics & barrels	7 1/2 @ 8 1/2	7 1/2 @ 8 1/2
UTTER—State, &c.	25 @ 42	25 @ 45
estern, &c.	10 @ 23	10 @ 25
ERSE	5 @ 15 1/2	12 @ 16 1/2
ANS—bushel	1 75 @ 3 75	2 25 @ 3 75
AS—Canada, free, &c.	Nominal	1 15 @ 1 20
igs—Fresh, dozen	35 @ 42	30 @ 38
ELTRY—Fowls	8 @ 17	12 @ 8
urkeys—&c.	8 @ 17	12 @ 8
ese, pair	1 75 @ 3 50	1 75 @ 3 00
icks, pair	75 @ 1 10	75 @ 1 25
tridge	40 @ 70	70 @ 1 00
IL—No doz.	1 12 @ 1 25	1 25 @ 1 75
NTON—&c.	10 @ 16	12 @ 14
RES—pair	50 @ 75	50 @ 75
RLITS—pair	30 @ 50	15 @ 35
RNITS—barrel	1 75 @ 2 00	1 00 @ 1 75
IONS—No 100	7 00 @ 10 00	6 00 @ 10 00
OOM—COAS—&c.	5 50 @ 7 00	5 00 @ 6 50
PLES—new, barrel	1 50 @ 3 25	1 75 @ 3 35
TATORS—bbl.	1 75 @ 3 50	1 25 @ 3 25
EST POTATOES—bbl.	3 50 @ 4 00	3 00 @ 4 00
ROOTS—bbl.	1 50 @ 2 00	2 00 @ 2 25
LEBY—No doz.	1 50 @ 1 75	1 25 @ 1 50

New York Live-Stock Markets.

	Bees.	Cows.	Calves.	Sheep.	Swine.	Totl.
EEK ENDING						
January 20th.	5,806	83	703	25,900	44,722	81,216
January 27th.	7,417	105	673	26,992	53,191	88,218
January 31st.	8,812	78	553	27,905	23,105	60,483
January 10th.	8,501	167	538	24,246	46,172	79,844
for 4 Weeks.	34,536	485	2,717	104,973	167,100	309,761
for 5 Weeks.	31,680	323	3,194	91,163	201,393	330,755
	Bees.	Cows.	Calves.	Sheep.	Swine.	
verage per Week.	8,631	109	679	36,243	41,775	
o do last Month.	8,326	65	639	18,883	40,279	
o do, prev's Month.	9,951	108	1,432	25,089	54,618	

Beef Cattle.—The two principal features of the market during the past month are heavy receipts and poor quality. Never before have we had such large arrivals at

this season of the year, upsetting all calculations regarding the markets, and causing heavy losses to owners. It seems strange that with corn so plenty and cheap at the West, such trash, in the shape of mean little 5 @ 6 ewt. Ill. and O. steers should be sent here. The elements had something to do with the poor quality, for the blocked state of the roads, with extremely cold weather, keeping the droves a long time on the way, pinched them out of a good many pounds of flesh. Texans are in light supply, and close at 8 1/2 @ 9 1/2 c. per lb., some fat Cherokees selling at 10c. Prices have declined about 1/2 c. per lb. during the month. Besides the live cattle figured in the above receipts, we are getting a good deal of Chicago dressed beef, the cold weather favoring sending. It sells at 4c. @ 6c. for very poor, up to 7c. @ 9c. for decent to prime carcasses. Buffalo beef is also competing.

The prices of the past 5 weeks were:

	Range.	Large Sales.	Aver.
Jan. 20.....	8 @ 14 c.	11 @ 12 1/2 c.	11 1/2 c.
Jan. 27.....	8 @ 14 1/2 c.	11 @ 12 1/2 c.	11 1/2 c.
Feb. 3.....	8 @ 14 1/2 c.	11 @ 12 1/2 c.	11 1/2 c.
Feb. 10.....	8 @ 14 1/2 c.	10 1/2 @ 12 c.	11 1/2 c.

Milk Cows.—There has been an increase in receipts, dealers counting upon an improved trade towards spring. They have been mistaken, and now the market is in about as bad a state as it well can be, with many cows unsold. Prices are much lower. The rates are \$38 @ \$45 each for very ordinary to thinnish cows of small size, \$35 @ \$65 for fair to good milkers, and \$70 @ \$75 for prime to extra large cows. **Calves.**—As is usually the case at this season of the year, most calves are sent in dressed, hence the light receipts of live. All kinds have had a good inquiry, with somewhat variable markets, but prices have averaged high, though not selling at the extreme rates of last month. Quotations for live, \$8 @ \$12 each for grass-calves; 8c. @ 11 1/2 c. per lb. for ordinary to prime milk-veals; 7c. @ 9c. for hog-dressed grass-calves, and 11c. @ 15c. for poor to fat milk-veals. **Sheep.**—There was considerable excitement soon after last report, a sensational story about diseased sheep getting into some of the papers and nearly killing the trade. Western farmers were charged with sending scabby sheep here, which butchers had bought and were killing for mutton. This story had its origin in the loosened wool, with occasional bare spots on the backs of sheep, caused by feeding heavily on corn, thus heating the blood and producing irritation. The story took many thousands of dollars out of the pockets of dealers, for which they had no remedy. Trade has not yet recovered from its lifeless condition, though people have ceased to be frightened out of eating mutton. The receipts have been large even for a good trade. The quotations are: 4 1/2 c. @ 6c. for poor to medium sheep; and 6 1/2 c. @ 7 1/2 c. for fair to choice, a few extras going at 8c. **Swine.**—Arrivals of Western dressed for the past 4 weeks were 33, 297. As dead hogs pack to better advantage than live ones, and as the railroads can not bring all the stock forward which is pressing for an Eastern market, dealers are killing their hogs at the West, and sending forward dressed. Live hogs too, are in full supply, but prices are firmer. Quotations of live hogs, 5 1/2 c. @ 5 1/2 c.; city-dressed Western, 5 1/2 c. @ 6c. for heavy to medium, and 6 1/2 c. @ 6 1/2 c. for light; Western dressed, 5 1/2 c. @ 6c.; State and Jersey, 6c. @ 7 1/2 c.

regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$8; making a club of 20 at \$1 each; and so of the other club rates.

Good Words from New Subscribers.—Several who have become subscribers this year for the first time have written that the first number amply repaid them for the whole year's subscription. As there were no pains taken to make the January number any better than any other, these friends will be gratified twelve times during the year, and putting their estimate into figures they will at the close of the volume have received at least \$18.50 for \$1.50 invested, which pays better than the much-talked-of Credit Mobilier stock.

The Chromos.—After delays that have given us much greater annoyance than they have our subscribers, the Chromos are being delivered with great rapidity. They give universal satisfaction, and are really worth many times their cost. Recollect that every subscriber for 1873, whether in clubs or otherwise, gets a copy of the Chromo (deliverable free at the office, 245 Broadway. See particulars on advertising pages if to be mounted and sent prepaid). The supply of these, as well as of the paper, will be kept inexhaustible, and subscriptions can be sent at any time. Those who get their papers through news-dealers must arrange with them for the Chromos. We deliver Chromos as above to all subscribers, whether they come to us through News Companies or otherwise.

Full Again.—We would like for once to clear up our letter-files and feel that all queries were answered. This seems impossible. More than half the letters asking for an answer in March will come to us after we have gone to press. A letter reaching us after the 10th of February, has not a ghost of a chance of being answered in March, and so with other months.

Your Name, if You Please.—We always have more letters than we can answer, and those to which the writers' names are signed take precedence of those signed "A Subscriber," "A Constant Reader," and the like. Observe that we never publish a name if a desire is indicated that it be withheld. Sign what you please, but add real name and address.

Replies by Mail are made as generally as possible. Those who inclose postage-stamps are more likely to receive a reply than those who do not. Many letters are unanswerable. Many would require us to send a person a long distance and use up half a day in ascertaining the facts asked for. We do the best we can with correspondents, and several of us devote much time that really should be given to rest and recreation, to answering letters.

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containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of Orange Judd & Co. **Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Heath and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Heath and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$3, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our

Sundry Humbugs.—In looking over our monthly budget of Humbug material we get tired of the old dodges, and wish that we may come across some new development, just for the sake of variety. This time we have a surprise in the shape of an

UNAUTHORIZED REFERENCE.

Here are several letters containing cards of B. Fox & Co., Canal street, New York, which say, "Parties doubting our responsibility, are referred to the following well-known firm—Messrs. Orange Judd & Co., Publishers of the *American Agriculturist*, 245 Broadway, New York City," and then follows another reference. We wish to state that this reference is wholly unauthorized, and that we know no good whatever of B. Fox & Co. This reference to us fairly entitles B. Fox & Co. to a prominent place in our list of humbings.

PAWNBROKERS AROUND.

There is a nice pawnbroker in Bond street, which his name it is Robinson. Rob. writes to a gentleman in Vermont that he has \$300 worth of jewelry, silver-plated ware, "and sich," on which he loaned a young man \$75. The young man has not called for his goods, and "for fear that he might have stole the goods" Rob. offers them to the Vermont gentleman for \$100, provided he will not tell where they came from. This is a very nice little game for Rob., but he knows another. He writes to a gentleman in Union Co., Pa., that he failed in business; his creditors seized all that he had, save about \$500 worth of pocket cutlery, silver-plated forks and spoons, etc. He will sell the lot for \$100, as he wants to go to California. There is a remarkable sim-

clarity in the value of the two lots, and the price at which he offers to sell them. We shall be glad to show any of Rob.'s creditors the letter. . . . Here is another from Bond street. The "New York Loan Brokers' Union" disposes of unredeemed articles by sending "certificates at 25 cents each." Each certificate contains the description of an article. If the holder of the certificate will send \$4.75 more, the article will be sent to him. A complicated sort of a lottery. A correspondent in Trumbull Co., Ohio, has sent this concern money, has written two letters and had no reply, and writes us to know "what course to pursue." We advise our friend to buy last year's volume of the *Agriculturist* and read over the Humbug articles, where he will find this swindle already set forth. He will have the satisfaction of learning that others besides himself have been caught in quite as silly traps, and he may reflect that no one in New York is fool enough to sell anything worth a dollar for a dime.

LOTTERIES AND GIFT CONCERTS.

Under various names and for plausible objects several lotteries are proposed. Here is to be a Prize Concert to raise funds to found a public library at Greeley, Col. We do not know how much truth there is in the statement that the drawing is to take place "under the direction of the Town Trustees," but if this is the case, those colonists who started out with such high moral aims, had better either come back or change the name of their town. It is unfair that the name of Mr. Greeley should be in this way associated with a swindle—for every lottery is a swindle or worse. They need some missionaries out West, for here comes a scheme to raise funds for the Nebraska Orphan Asylum. What if the names of Governors, Judges, Marshals, and other eminent men are attached to it! So much the greater shame. If a missionary is sent to Omaha, we hope it will not be the Rev. Wm. C. Clarke, of Brooklyn, as he is in the same boat. There is to be a fair for the erection of the Bethesda Mission-House and other things. 300,000 tickets are to be issued at \$1 each, and \$83,750 are to be distributed in prizes varying from a \$12,000 house and lot to a 50-cent engraving. The circular for this lottery tells us that "vast multitudes are sleeping in ignorance and vice," and after seeing this circular we are disposed to believe it, as the "distribution" is a strong indication of "vice," if not of "ignorance." We would suggest that this Rev. Mr. Clarke is in a business in which no Christian minister ought to be engaged. In this case the end does not sanctify the means. Just think of sending lottery tickets all the way to a small town in Missouri, to raise funds to build a "Mission" in the wealthy city of Brooklyn.

FOREIGN LEGACIES.

The foreign legacy humbug has started up again. A chap in Glasgow, Scotland, named Benedict, has circulars printed with blanks to fill in with names and amounts, which he sends to people in this country, informing them that more or less millions have been left by "So and so" to his nearest relatives in America. "And if you choose to write me I can inform you further about the matter." Others are less modest than Benedict, and ask for a fee in advance. We don't advise taking much stock in foreign legacies.

QUACK DOCTORS AND MEDICINES.

The melancholy thing about this department of humbugging is the fact that victims are so readily found, not only among the poor and ignorant, but among those possessing wealth, and, upon most matters, intelligence. One of these chaps, with a small fortune in the way of diamonds upon his shirt-bosom, came in a short time ago to remonstrate with us for classing him with humbugs. It was suggested that he could get his remedy in court, but he intimated that he knew too much to try that. He told us that last year his profits were \$75,000, and he expected that they would be \$150,000 this year. This was only one of the successful quacks in the country into whose pockets the people pour millions. About the only "novelty" we have in the way of medical quackery is the "Oxygenized Air." Oxygen as a remedial agent has been used more or less since the days of Beddoes. One Blood issues a sheet containing repulsive engravings, frantic appeals to take his stuff or die, and the stereotyped abuse of physicians, all of which induce us to advise people to let Blood and his Oxygenized Air alone. . . . Here, is the wonderful "Vin Iridia," which "should always be used" in nearly fifty different diseases. . . . Here are Moore's African Remedy and Zambesi Fever-Cure. No, we thank you. Stanley has been enough for the present; this African business is "ausgespilt." . . . H. James don't go to Africa for his stuff, but has his Excelsior Ointment of India and his *Cannabis Indica* stuff. He gives his prescription for making his medicine, but as *Cannabis Indica* is not grown in this country, he informs people where the regular thing can be had in Philadelphia. This is very old and very thin. . . . We must repeat

again and again that no New York University or Dispensary of any kind that has any right to the names ever advertises medicines of any kind or ever publishes their cures. Let all such alone.

IMPROPER BOOKS AND APPLIANCES, ETC.

For those who send for books and prints advertised in such a way as to lead to the belief that they are low, and receive unexceptionable things, we say, "Served 'em right." Don't come whining to us because you did not get the things you hoped for. We have no sympathy with people who send money for improper things and get cheated, but we have great sympathy for a decent person who receives a vile circular, asking him to buy books, pictures, and appliances which he had never known the existence of. We will not advertise these people by mentioning names, but will merely say there are persons in Augusta and Portland, Me., and New Bedford, Mass., that will need looking after. *Wood's Museum* is a very innocent-looking paper published in New Jersey. The two outer pages are filled with unexceptionable matter—even that of a religious tone—while the inside is filled with advertisements of the most objectionable kind.

QUICK WAYS OF MAKING MONEY.

How is it possible for a person to fall into a trap like that of Dennis Wells, who offers to show how to make \$1,000 a day? Why does not Dennis make the money himself? If people would apply this test to these rapid money-making projects, they would see the folly of them. A concern offering great inducements with Needlebook and Porte-monnaie, another wanting agents for the sale of Tea and Coffee, is not to be found in the N. Y. Directory. . . . Suspicious-looking chromo advertisements appear in the Boston papers.

DEALERS IN THE "QUEER."

Our Humbug article would not be complete without a reference to those who apparently offer to send counterfeit money. We described last month the manner of operating. A printed or lithographed circular is sent out, and a name and address is inclosed, on a loose slip of paper. We give the following names: At 24 Amity street—L. M. Craig, Dr. G. B. Emes, P. L. Hawkes, T. Hindman, C. Large, Dr. Geo. Prefule, Chas. Stebbins, T. M. Weller, Egbert Warton, H. Hinds, At 74 Bleeker st.—J. Bishop, O. E. Burras, G. Bedell, Geo. Bower, W. Barnes, A. B. Beesey, W. Crant (or Crant), Wm. Chidester, L. S. Downing, W. C. Dutton, J. W. Ensign, E. Goodrich, L. M. Gearing, Geo. M. Green, A. E. Kelly, R. Lamphere, H. B. Meech, C. Melvin, G. L. Masher, Col. L. Putnam, Geo. Ritchey, L. D. Skelton, Col. J. Townsend, L. Waldron, C. B. Miles, J. Ward Emerson. At 609 Broadway—A. M. Bond, Wm. Ballard, M. T. Ferrier, J. Travis, D. Anthon. All of the addresses here given, save two, are written upon precisely the same paper and in the same hand. Isn't it a pretty set of aliases? J. W. Ensign, at 74 Bleeker street, says: "Remember I do not dare to call for any letter, and if you write me by mail I will never get your letter." What a green person must it be who will trust money to a man who does "not dare" to call for a letter? From 58 Broadway, circulars are sent by Reid Delafield & Co., who entreat their correspondents to send by express, "never by mail, POSITIVELY NEVER," to which we add—nor in any other way. It is melancholy to think that there are fools enough in the country to make profitable such a transparent swindle as this pretended counterfeit-money business. It is a consolation to know that those who send for "the queer" never get any; they lose their money and are ashamed to "sneak." . . . Since the above was written we notice that some of these dealers have been arrested, and the Mayor of New York promises to do all that the present laws will allow him to do in suppressing this vile swindle.

Good Advice.—"S. W." writes: "I see 'Walks and Talks' is in doubt whether mangel-wurzels are or are not more profitable than corn. I would say, *always raise both*."—We think this hits the nail right on the head. The two fed together are more profitable than either alone—and our friend W. and T. would be the last man to say otherwise.

The Practical Magazine.—This is an elegant monthly of eighty large quarto pages, devoted to "Industrial News, Inventions, and Improvements." It is beautifully illustrated, and the first number gives promise of a serial of great value and excellence. It is published simultaneously in England and in this country. Boston: James R. Osgood & Co. Price, \$1 each number, or \$10 a year.

Tools for Boys.—"J. A. B.," Peoria, Ill., asks if it will help a boy to be a farmer to learn how to use carpenters' tools.—Decidedly; every farmer should know how to use carpenters' tools, and he will be apt to

plow a better furrow, and check out his cornfield more equally, if he can saw a straight cut through a board, or plane a straight edge on it. Besides, every farmer ought to know how to make his gates, or build his sheds and stables or pig-pens, in such a shape that he will not be ashamed of them. In this way he saves money; which is money twice earned.

Oats for Butter.—"J. S.," Warren Co., Ohio, has five hundred bushels of oats, which are worth only thirty cents a bushel. He asks if it would pay better to feed them to milch cows, making butter at twenty-five cents a pound, than to sell them.—If they are ground into meal, and four to six quarts a day are fed to good average cows, the extra yield of butter ought to pay for the oats, and the better quality of the manure made and the gain in the calves will yield a fair profit besides.

Scratches.—"G. P.," Buffalo, wants a remedy for the scratches.—Scratches or grease may very often be cured by washing the legs with warm water and soap, and, after drying thoroughly with a soft cloth, applying glycerine or lard perfectly free from salt. If this does not avail, a pound of "concentrated lye" or carbonate of potash may be dissolved in two quarts of water and put into a bottle. A quarter of a pint of this solution should be put into a pailful of cold water, and the horse's heels bathed with it night and morning. The legs should be dried immediately after the bathing, but considerable moisture will exude from the skin afterwards. The stable must be kept clean, and no snow or ice allowed to remain on the legs.

Scours in Sheep.—"R. G.," wants a remedy for "dysentery" in sheep. He probably means diarrhea, which is a far more common and less dangerous disease than dysentery. For ordinary cases of diarrhea in sheep, change the food and give the sheep all they will eat of a mixture of equal parts of Glauber's-salt (sulphate of soda) and common salt. This may apparently increase the difficulty at first, but will usually effect a cure. Where there are only one or two sheep affected, and it is probably caused by weakness, give a pint of fresh milk made into a porridge with a table-spoonful of wheat flour, once a day. If this does not effect a cure, give two ounces of Glauber or Epsom salts and 20 drops of laudanum, and in five hours give ten more drops of laudanum. If the sheep is very weak, give half a pint of warm ale with a little ginger or gentian.

Weight of a Barrel of Potash.—"Reader" is informed that a barrel of potash weighs about 500 pounds.

Spring Wheat.—"G. H. W.," Gallatin, Tenn., wants information as to the cultivation and yield of spring wheat.—Spring wheat is a good crop in the more Northern States and Canada; it is sown as early as possible in spring on fall-plowed land, and succeeds peas or roots, or on new rich land is made to follow fall wheat, but the latter only in exceptional cases. A good yield is 25 bushels per acre. This crop is not suitable for Tennessee, nor for south of the center of Lake Erie.

Feeding Breeding Sows.—T. R. Logan, of Texas, asks: "Is there any feed that can be given without stint to a young sow that she may grow to her fullest capacity, and not get too fat?"—We know of none. You must use more than one kind of food, and feed with judgment, sometimes making the food richer and sometimes more bulky, in proportion to nutriment. Our own plan, which we have not space to give in detail, is to feed young sows intended for breeding all the rich food they can eat and digest until they are four or five months old, and sometimes until they are seven or eight months old—depending on the season and on the disposition to fatten. When they appear to be getting too fat (not as compared with common pigs, but as compared with others of the same breed), we give all the food they will eat as clean, but make it less nutritious. Turnips, cabbage, mangels, green clover, and bran are good to weaken the food, and corn-meal, oatmeal, or barley meal good to enrich it. Plenty of exercise, food, and water is our motto.

Long-keeping Apples.—In November last, Mr. Otis Chickering left with us an apple which was then in the third year of its age. This apple is a local variety at Enfield, Mass., of medium size, and sweet. They were always known as keeping until apples came again, and late in the spring of 1871 a barrel being four in excellent order, their keeping qualities were further tested, and though harvested in 1870, they were in good order after the harvest of 1872.

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Kyanizing Timber.—"L. I. B.," Weymouth, Mass., asks, What is kyanizing and how is it done?—Kyanizing is a process invented many years ago by a person named Kyan. It consists in saturating the timber with a solution of corrosive sublimate (bichloride of mercury), or chloride of zinc, under strong pressure. There are more than twenty other similar processes which have the same object, but they require powerful machinery and are not suitable for general application. One of the simplest and most easily applied processes of preserving timber (especially adapted to fence-posts) is to set the seasoned pieces on end, surround the upper end with a band of rubber or plastic clay projecting beyond the edge upwards so as to hold liquid, and fill it with the preceding solution, which gradually penetrates the pores, and by destroying the vegetable albumen removes the tendency to early decay.

Cost of Feeding Horses.—Dr. Voelcker, an eminent English authority, is of opinion that a horse requires for its sustenance the produce of eight times as much land as is necessary to sustain one man. If this is correct, then the sustenance of the eight millions of horses and mules we possess would be equal to the support of over 60 millions of men. To feed our horses costs 50 per cent more than to feed our present population.

To the Pisciculturists.—An experienced traveler says: There is no fish more richly deserving an introduction among us than the Russian Sterlet, for, being a mud-fish, it will thrive where the trout will not. Another great consideration, it has no bones. Its flavor is considered almost if not quite equal to our celebrated Whitefish of the Western lakes, but it is not usually so large. It abounds in the Volga, and we do not know but in other rivers of Russia. We believe it is also found in the Caspian and Black Seas.

The Whitefish of the Western Lakes and the Otsego Shad.—"A.," asks: "Can any of your readers inform me if these delicious fish have yet been introduced into the large ponds and small lakes of the Eastern States? If not, why not?"—You do not give State. If in New York State, you can probably get Whitefish of Seth Green, the State Fish-Culturist, who has secured a large number of eggs.

Breeding In-and-In.—"J. C. M.," writes: "I have a Berkshire sow and boar near the same age. They are half brother and sister, being sired by the sire of both dams and both from first litters. Are they too near to breed together?"—If the sire (B) is a very choice animal, and if the two original sows (A and Z) were of entirely distinct blood, it may do to risk breeding the offspring of B A and B Z together. They are not identical blood, as brother and sister would be. Their offspring would have 75 per cent of B blood and 12½ of A and 12½ of Z blood. As we have before said, if B is a very superior and healthy animal, you may get very choice pigs that would be very valuable to cross with common sows, or for establishing a new strain of "B" stock; but as a rule there are more chances of failure than of success, especially with pigs. It is best to avoid in-and-in breeding as much as possible.

Cow-Milker.—"S. J. B.," Nelson. We know of no cow-milker that has come into practical use. We know nothing of the parties you inquire about. We also know that we would have answered by mail had you named your State, or had the post-mark been legible.

English Roots.—Some of the large seed-houses in England offer prizes for the best roots raised from their seed, and in this way get up private root-shows. Messrs. Carter, Dunnett & Beale have sent the lot which took the prize at their last show to Messrs. B. K. Bliss & Sons, who exhibit them at their store on Park place and Murray street. The mangels, various Swedish turnips, carrots, onions, etc., are something wonderful in size, and show what can be done in root-culture in a climate particularly favorable to it.

Cannas.—"W. M.," West Newbury, Mass. Species of Cannas, of which there are several in cultivation, will come true from seed. The majority of the finest ones are garden varieties produced by hybridizing, etc., and these can not be expected to reproduce themselves exactly, but are multiplied by division of the roots.

Keeping Sows too Fat.—"I have always," writes a Pennsylvania farmer, "been afraid to keep breeding animals too fat. I once lost two valuable Ayrshire cows from milk-fever, caused as I supposed by keeping them in too high condition. Since then I have tried to avoid this error. I have just been reading 'Harris on the Pig,' and am almost convinced that I have been keeping my breeding sows too thin. I have some

Berkshire sows now from nine months to a year old that I intended to breed from. They weigh about 75 lbs each. From what is said in 'Harris on the Pig' I suppose I have made a mistake in keeping them so thin. Would you, or would you not, advise me to breed from them?"—You have certainly kept your pigs too thin. If they are healthy and thrifty, they may nevertheless produce good pigs, but this is not the way to obtain the most valuable stock for breeding purposes. A well-bred pig should have had all it can eat and digest while young for generations. Mr. Harris makes this matter very clear, though he perhaps carries the practice of high-feeding to an extreme. In his own practice, however, he has been quite successful as a breeder. As we understand him, he does not recommend high-feeding after the pigs have attained their growth. He feeds his pigs all they will eat until they are five or six months old, and then gives less concentrated food.

Managing a Stock-Farm.—"S. K. S.," New York, asks the following questions: 1st. Can he by feeding all the crops he raises on a farm to pigs and sheep keep the land in good order? 2d. What crops would be best for the land and for the stock? 3d. What kinds of sheep and hogs would be the best to keep?—Replies: 1st. Yes. 2d. The crops should be clover, corn, roots, with rye, oats, or barley for crops with which to seed down to clover again. Variations may be made occasionally, but the main crops would be these. 3d. Berkshire or Essex pigs or their grades, with grade Cotswold sheep or South-Downs, would be suitable.

Cure for Garget.—M. R. Smith, Fort Hamilton, sends the following experience with an Alderney cow, whose milk was bloody after calving and the udder inflamed. The cow was bled, and a pint of castor-oil given to her. Her udder was rubbed night and morning with an ointment of elder leaves and twigs boiled in lard. In a week the cow came to her milk, and was never afterwards troubled with this complaint.

Fodder Corn.—"L. C.," Lexington, Ky., desires to know how many acres of fodder corn would be needed to supply 20 cows from 15th July to 15th October.—The general allowance is one square rod per cow per day. But this depends, of course, on the character of the soil. Twelve acres of rich corn land would doubtless be sufficient, if planted in rows three feet apart and twelve seeds to the foot, and the soil kept well cultivated. If the soil is poorer or the best care not taken, double that quantity might be insufficient.

Black Berkshire Pigs.—"J. C. M.," asks if a pig entirely black can be a pure Berkshire.—It would require good evidence to establish its purity. The probabilities are that he has a dash of Essex blood in his veins.

Cement for Drain-Tiles.—"A Subscriber" asks how cement for making pipes and tiles is mixed.—One bushel of Rosendale cement should be evenly mixed with three bushels of sharp clean sand and four bushels of washed gravel, not very coarse but not fine. When all is carefully mixed, sufficient water should be added to make a soft mortar, and the cement rapidly worked until well mingled, and then immediately used. It sets very quickly.

Tan-Bark for Manure.—"E. H. C.," Bradford Co., Pa., asks if spent tan-bark is worth hauling eight miles to use as manure?—Hardly, if there is other work for the horses or man. If not, it might be worth while to haul it during the winter, and burn it slowly as soon as dry enough in spring, and spread the ashes on grass land or potatoes.

Quick Churning.—"E. K. G.," Holliston, Mass., in reply to an inquiry about a difficulty in making butter come, says he has always succeeded in churning in ten minutes by taking care to have the cream of a temperature of 60 to 64 degrees. There should be no guess about it, but the thermometer should be used to see that the cream is exactly right.

White Mustard again.—"C. E. C.," We have told all we know of white mustard. It is a comparatively new crop in this country, and we shall have to experiment with it much longer than we have, before we can answer all your questions. We will answer such as we can. 1st. White mustard fed green to cows does not impart any disagreeable taste to the milk, cream, or butter. 2d. We did not pasture cows on it. We mowed it and used it as a soiling crop. 3d. Shell marl would be a good manure for it. 4th. We think the growth of mustard will enrich the soil, if the crop is fed off on the land, more than oats or rye. 5th. We think it would be a good plan, if you have a field of loamy land

that you are going to sow to wheat next fall, to sow it this spring to mustard, because if the mustard fails you can still summer-fallow the field, and if you have a good crop you can use what you want of it for pasture or for soiling, and plow under the rest as a green manure for wheat.

Sugar-Beets for Pigs.—"S. W.," writes: "I see it stated that boiled sugar-beets will fatten pigs faster than raw corn. Would not mixing in meal with the hot boiled beets improve both?"—Certainly it would. It is poor economy to keep pigs on beets alone.

Pasturing Wheat in Winter.—"J. J. S.," New Amsterdam, Ind., asks if it is any benefit or injury to pasture wheat during the fall or winter with sheep or calves.—Where the wheat crop, in very warm wet weather after sowing, becomes very luxuriant, it is sometimes pastured down by sheep or calves. This retards its growth and causes it to tiller freely on lands subject to "heaving." Sheep and calves are also sometimes turned on to the wheat in winter for the purpose of treading the roots into the soil again and compacting the earth around them. We rarely see a crop of wheat so luxuriant as to need feeding off in the winter.

Value of Holstein Cattle.—"C. G. H.," Bridgeton, N. J., asks for information about Holstein cattle.—We presume he means Dutch cattle, which are large, bony animals, of a black and white color generally; they are large milkers, more suitable for the milk or cheese dairy than for butter, and require abundant feed and pasture. Bridgeton, N. J., is not a desirable location for these cattle.

Where to Locate.—A farmer in Chester Co., Pa., writes: "I have been on the present farm twenty-nine years. Came here when sixteen years old. It was a worn-out farm. Father bought it for \$18 per acre. He has renewed the buildings and otherwise improved the place until it would now, in this depressed market, bring \$80 or \$90 per acre. I have been farming on shares and renting the past 18 years. Have paid since 1862 a yearly rent of \$550. The farm contains 136 acres, 16 acres in woods; the rest, with the exception of an acre, has been plowed and is in good order. Produce on clover sod 60 to 80 bushels corn per acre. With manure I have raised 100 bushels per acre. I have by strict industry and economy made and saved some money. I could pay about half what the place would bring. Would it not be wiser to go South or West and pay all and have a farm clear? We have good health, with family of five children. An answer would much oblige a constant and interested reader of the *American Agriculturist*."—We can not undertake to advise on such an important matter. You know the farm; know what it has produced, and what money can be made from it. If there is a fair prospect of paying for the farm, we should think it was better to stay where you are than to go to a new place. Many farmers that go West and South return discouraged. As a people we are so much inclined to move, that those who stay in one place and "fight it out on that line" are, all things considered, the more prosperous and useful.

Plowing Under Clover.—"S. W.," of Seneca Co., N. Y., writes: "Forty years ago a farmer came to this county from Pennsylvania. He plowed under great crops of clover when in bloom for wheat. He told us that was the only way they raised wheat in Pennsylvania, and he wanted to keep ahead of them. He succeeded. But now he is dead, and the practice of plowing under clover has been abandoned. And the result is that the land has worked down hard and the wheat freezes out."—This is all very well. And we highly approve of plowing under clover unless you do something better—as you can. In this same neighborhood, and within a few miles, lies John Johnston's celebrated farm. He does not plow under clover, and yet his farm is as rich and productive as ever.

The Labor Question.—J. A. Grandy, Union Co., Pa., sends us a communication on this subject, in which he gives his view of the proper solution, viz.: "That farmers should act in harmony in raising the prices of produce by reducing the quantity. That, by raising only half the quantity of grain, save half the labor and sell the product at over four times the usual price. Then raise the price of wages until the farm laborer is put on an equality with the mechanic, and induced to stick to the farm." [The chief trouble in achieving this result would be found in the utter impossibility of getting farmers to hold to such a combination. As soon as it was felt certain that the price was going to be raised fourfold, every man would sow and plant as much as he possibly could and thus defeat the scheme. This is human nature, and no combination will change that.—Ed.]

Seeds from the Agricultural Department.—"J. H. F.," Colony, Mo. The Department sends out seeds, good, bad, and indifferent, ostensibly for trial. Write to the Commissioner. We pay those people at Washington to serve us, and you have as much right as any one to make known your wants.

That Barn Plan.—"J. H. B.," Princeton, N. J., asks for more information about the plan of barn in the December *Agriculturist*, which he thinks worth ten years' subscription to the paper. The roof of the root-house should be arched with stone and covered with cement and two feet of earth. The basement wall should be eight feet high and two feet thick. The height of the barn should depend on the size of the floor. For a barn of 50 feet square, the model from which the plan was taken, the posts should be 20 feet. The plan is drawn to scale, the whole being 50 feet square.

Grubs.—"O. C. S.," Milton, Ky. You probably refer to the White Grub, the larva of the May-bug, as injuring your corn. We know of nothing that will help you, save employing children to follow the plow and pick up all they see, and kill all the May-bugs you can.

Milk-Coolers.—"D. T. E.," Madison Co., N. Y., asks why milk-coolers 25 inches high and 13 inches in diameter, which cost but a trifle more than those 8 inches in diameter and holding $2\frac{1}{2}$ times as much, are not as good as the smaller ones for dairy use.—The advantage gained by having the deep narrow coolers is that the milk is cooled rapidly; this advantage would be proportionately sacrificed by increasing the diameter of the coolers, and the saving in cost would not compensate for the loss of utility.

Mixing Clay with Sandy Soils.—"W. F. K.," Mayport, Fla., wishes to improve his light sandy soil by adding clay which he can procure at an easy distance; how shall he do it?—The cheapest way would be to dig the clay when it is in such a condition of moisture that it will crumble easily. Then haul it on to the sandy soil and spread at once. A few plowings will mix it thoroughly with the sand. A wagon-load of about a cubic yard per square rod would add a little over an inch in depth, which would be little enough for once.

Butter-Making.—"Domestic" asks for the best work on butter-making. Probably Flint's *Milch Cows and Dairy Farming* contains as good a chapter on this subject as any book devoted to dairying.

How Much do Horses Sleep?—"R. H. C.," Omro, Wis., asks how much do horses sleep in 24 hours? He thinks not more than one or two hours at most.—Horses probably require as much sleep as any other animal, and would sleep more than they do and be better for it, if their stables were made comfortable and clean and kept free from flies. He suggests also that a horse when his work is over be permitted to refresh himself with a good roll, which would be very well if a clean piece of grass were handy for the purpose.

Elk.—"J. D.," Kossuth Co., Iowa, would like to furnish us or any of our friends with some tame elk two years old, for a valuable consideration. Now this is business, and business being business, should be transacted through the proper columns devoted to advertisements. Most likely a proper advertisement would attract the attention of persons who desire such animals.

Analysis of Vegetables.—A gardener in Ct. asks where he can find the analyses of garden vegetables generally, and says, "We wish it for the purpose of applying manure."—There is a partial table in Watson's *Home Garden*, but it will be about as much use in "applying manure" as the multiplication-table. Manure, manure, and more manure, is what you want in market-gardening.

Fungus on Apple-Trees.—"P. C.," Charleston, Mo. We can not tell the name of the fungus from your description. We would try the effect of a heavy dressing of lime.

Cranberries and Onions.—"W. L. R." It is impossible to give the information you ask in one or several articles. If you know nothing about the cultivation of either of these you should get our *Onion* pamphlet, and White's *Cranberry Culture*. See Book-list. If you have not a peat swamp that can be flowed at will, you had better not undertake cranberries.

Manure for One Acre.—"H. N.," New York, suggests the following manure for one acre of sandy loam, to be planted in carrots and parsnips,

which was well manured in 1871, and gave a good corn crop, and in 1872 a good oat crop without manure—namely, 10 loads of cow manure, 1 barrel bone-meal, 1 barrel superphosphate, 1 barrel gypsum, 6 barrels of wood ashes, $\frac{1}{2}$ bushel each salt and nitrate of soda, and 20 bushels of potash.—We would recommend that the nitrate of soda and the potash be dispensed with, and dependence to be placed on the rest of the manure. If the season should happen to be dry, the potash would certainly burn the crop, and at any rate it would be in excess of its needs.

Cost of Keeping Cows.—"J. H. G.," Eaton Co., Mich., asks what it would cost to keep 7 cows with hay at \$10 a ton and oats and corn ground at one cent per pound, and if milk could be produced at 6 $\frac{1}{2}$ cents per quart.—If the hay is cut, moistened, and mixed with 8 pounds of the meal per day, eighteen pounds will be sufficient. The feed would then cost 17 cents per day for a cow. All the milk produced above 3 quarts a day would be profit, and a fair cow should give more than double that quantity when thus fed.

Bermuda Grass.—"J. C. R.," Texas. Bermuda grass propagates very freely by the root, and rarely or never bears seed. You must send for sods to some locality where it grows, and if you only get a bit you will have no trouble in multiplying it. We have seen it growing in Bexar Co.

About Corn-Planters.—"F. S. Sanderson, Petersham, Mass., says a word or two about corn-planters, as follows: Corn-planters should be made to plant two rows; if larger, they are cumbersome. An improved two-row planter will drop fifteen acres per day. The planter should go on runners, which should make the furrow for the seed. The seed-boxes should be over the runners, with a tube to convey the seed to the ground. A pair of wheels following, cover the seed. The driver should ride, and operate the dropping apparatus by hand.—These suggestions are valuable to those interested.

Percheron Horses in Pennsylvania.—"Subscriber," Allentown, Pa., sends us a good word for the Percheron horse. After three years' trial he has found them well adapted to the rough, hilly roads of Eastern Pennsylvania, and for heavy work both on the road and farm.

Cattle for Western Pennsylvania.—"E. C. J.," Clinton, Pa., asks which is the best breed of cattle for Western Pennsylvania, Durham or Devon.—Devon, by all means; Durham cattle would be very much out of place on hilly ground or on thin pastures, while the Devons are at home in such a country.

Earth-Worms in Pots.—"R. M.," Ga. Lime-water will destroy worms without injury to most plants. The lime-water must be perfectly clear.

Sawdust in the Garden.—"E. M. C." "Well-rotted sawdust" will be useful for vegetables in a sandy loam, provided it is well-rotted, which is very rarely the case. Sawdust undecayed will be worse than useless on such soils.

Calked Foot.—The present season is productive of frequent injuries to the foot from calking. If this is not properly treated, the hoof often becomes badly diseased in consequence. The wound should be well washed with warm water, a plug of lint saturated with "Friar's Balsam" (Compound Tincture of Benzoin) placed over it, and boned with a strip of cloth. If the wound suppurates, the plug of lint and balsam should be kept in it until the suppuration is stopped. This is especially for the benefit of G. P., Buffalo.

About Potash.—"A Subscriber," Port Byron, wants some information about potash.—Potash is a staple article of trade, and is salable in all the large cities. It is refined, and made into pearl ash and saleratus. The wood-ashes require to be leached; the lye is boiled down until the salts are deposited; they are then dipped into another kettle and melted; when the cake is cool, it is broken up and packed into barrels for market. The *Agriculturist* of September, 1872, contained an account of the manufacture, with engravings, showing the methods commonly in use.

West Point.—And. F. Frantz, Lancaster, Pa., informs an "Inquirer" that appointments to the Academy at West Point are made from each Congressional district and by the representatives, of whom inquiries may be made.

See page 119 and Third Cover-page.

Corn-Stalks.—"E. C. J.," Clinton, Pa., asks if the stalks of corn-fodder are equal in value to the blades.—We believe they are.

Proud Flesh.—G. H. Allen desires to treat an old wound from a shoe-calk which is now filled with a growth of proud flesh which cracks and bleeds.—We would apply an ointment of perfectly pure lard, finely powdered white sugar, and sulphate of copper, to the proud flesh or fungus growth until a healthy sore appears, when it may be healed by a covering of lint steeped in the Compound Tincture of Benzoin. The foot should be bandaged, and a leather cap be worn over the foot to preserve the wound from blows until it is healed.

Sugar from Melons.—M. W. Wadsworth, of San Francisco, Cal., has published a small pamphlet entitled "Indigenous Sugars," in which he proposes the cultivation of melons (both water and musk) as a source of syrup and sugar. In California the melons are much sweeter than with us, and they have not a host of insects to contend with. However the project may result in the Pacific and Southern States, we doubt if it will be found practicable at the East and North.

Working Young Colts.—"W. O. D.," Elliot, asks, Will it hurt two-year-old male colts to do light work, as hawking in the spring, or to be ridden by a man weighing 150 pounds?—The light work will not hurt them, but 150 pounds is too great a weight for a two-year-old to carry.

Catalogues Received.

The following list comprises the Catalogues of Nurserymen, Seedsmen, and Florists, which have been received during the present year:

Nurserymen.—B. P. Hanan, Clark City Nursery, Clark City, Mo.; Joseph W. Vestal, Cambridge City, Indiana. ... Bronson, Hopkins & Co., Geneva, N. Y. ... J. E. Pierce, Climax, Mich. ... Small Fruits and Evergreens. ... Sweet & Morey, Danversville, N. Y. ... Wm. Morton & Son, Deering, Me. ... Evergreens. ... Benjamin Reid & Co., Aberdeen, Scotland, Trade List of Nursery Stock. ... Wauk, Kafoth & Hoover, Voganville and West Earl, Pa., Agents for Dingee, Conard & Co., General Nursery Stock. ... Harvey Curtis, Owego, N. Y. ... Robert Douglass & Sons, Vankegan, Ill., Forest trees. ... Storrs, Harrison & Co., Painesville, Ohio. Chestnut Trees. ... A. Bryant, Jr., Princeton, Ill., Wholesale and Retail Price-List of Nursery Stock. ... George S. Haskell & Co., Chicago, Ill. Field, Garden, and Flower Seeds.

Seedsmen.—Alfred Bridgeman & Son, 876 Broadway, N. Y. Henry A. Dreer, Philadelphia, Pa. ... James Fleming, N. Y. ... Miller & Sievers, San Francisco, Cal., Californian and Australian Seeds, Bulbs, and Plants. ... Henry Keller, Darmstadt, Germany, Tree and Grass Seeds. ... Hugh & Church, Knoxville, Tenn., Field Seeds. ... A. Bryant, Jr., Princeton, Ill., Fruit, Evergreen, and Forest Seeds. ... Benjamin Reid & Co., Aberdeen, Scotland, Nursery and Grass Seeds. ... J. M. Thorburn & Co., New York. ... Waldo F. Brown, Oxford, Ohio. ... W. R. Elliott, Pittsburgh, Pa. ... Peter Henderson & Co., N. Y. City, Seeds. ... Plant Seed Co., St. Louis, Mo., Catalogue and Farmer's Almanac. ... O. Burras, North Fairfield, Ohio. ... James Vick, Rochester, N. Y. ... Briggs Bros., Rochester, N. Y. ... B. K. Bliss & Sons, N. Y., Flower and Vegetable Seeds. ... Jas. J. H. Gregory, Marblehead, Mass., Garden Seeds. ... H. Young, York, Pa., Flower and Vegetable Seeds. ... Reeves & Simonson, N. Y., Garden and Flower Seeds.

Florists.—Aléguatière, Lyons, France, Zonal Pelargoniums. ... J. B. Guillot, Lyons, France, Roses. ... DeLiabaud, Lyons, France, New Roses. ... Damaizin, Lyons, France, Roses. ... Levet, Lyons, France, Roses. ... Ducher, Lyons, France. ... Joseph Schwartz, Lyons, France, Roses. ... Peter Henderson, N. Y. C., Greenhouse Plants. ... Miller & Hayes, Philadelphia, Pa., Roses. ... Reeves & Simonson, New York City. ... A. P. Jones, Fond du Lac, Wis., Greenhouse and Bedding Plants. ... Bellevue Nursery, H. E. Chitty, Supt., Paterson, N. J., Greenhouse and Bedding Plants.

Miscellaneous Catalogues.—B. S. Lee & Co., Rochester, N. Y., Waters' Improved Tree Pruner. ... E. W. Clark, Springfield, Mass., Rustic Work.

American Fish-Culturists' Association.

The second annual meeting of this Association was held at the office of G. Shepard Page, No. 10 Warren street, February 11th, at 11 o'clock A. M. The occasion brought together a large number of fish-breeders and fish commissioners from all parts of the country.

Several very interesting papers were presented, which, with the discussions accompanying them, occupied the whole day. The president, in his annual address, recounted the marked events of the year in this new

industry. Congress had made an appropriation of \$15,000, which had been expended under the direction of Prof. S. F. Baird. Shad had been planted in the upper waters of the Mississippi, near St. Paul; in the Alleghany, at Salamanca, N. Y.; in the White River, at Indianapolis; and in the Platte, at Denver; and a demonstration had been made that shad would flourish in the Mississippi valley, in the appearance of large numbers of the fish in the Wabash, near Hot Springs, Arkansas, and at Neosho Falls, in Kansas. About 1,500,000 salmon-spawn had been taken in the Penobscot, near Bucksport, Maine, 750,000 had been imported from Germany, and about 7,000 of the Sacramento Salmon spawn, a distinct species, were now hatching at Dr. Slack's for the Susquehanna River. About 750,000 spawn of the Whitefish had been taken in Michigan, and a large number of these were destined for the waters of California. An application has been made for an appropriation of \$30,000 from Congress, which will enable Prof. Baird to carry out the enterprises begun.

The year has been one of very satisfactory progress in fish-culture, both with the State Commissioners and the private breeders. The following officers were elected: President, William Clift; Secretary, A. S. Collins; Treasurer, B. F. Bowles. Executive Committee, Seth Green, E. A. Brackett, M. C. Edmonds. The Association adjourned to the second Tuesday of February, 1874.

The Death of Luther Tucker.

On January 26th, Luther Tucker died at his residence in Albany, at the age of 71, being at the time of his death the oldest agricultural editor in the country. Brought up as a printer, Mr. Tucker, after a varied experience in his early life, settled at Rochester, where in 1826 he started the Daily Advertiser, the first paper issued west of Albany. In 1831 he established the Genesee Farmer, which was published under various changes of proprietors, but always with Mr. Tucker at its head. The Cultivator was established at Albany in 1834, by Judge Buel, and upon the death of that gentleman in 1839, Mr. Tucker was induced to unite in consolidating the two papers, and the result was "The Cultivator, a consolidation of Buel's Cultivator and the Genesee Farmer." In 1853 Mr. Tucker commenced the publication of the Country Gentleman as a weekly, and for some years continued the Cultivator as a monthly made up of matter selected from the weekly. The monthly was at length discontinued, but Mr. Tucker continued in the eminently successful management of the Country Gentleman until the time of his death.

Mr. Tucker was the first publisher of the Horticulturist, of which A. J. Downing was editor, and continued it until the death of that gentleman. The editorial care of the Country Gentleman will be continued by Mr. Luther H. Tucker, who has long been managing editor. One of our associates, who was for a time engaged by Mr. Tucker, thus writes of him:

"I never knew a man more regular, systematic, and orderly. He was always at his desk and always at work. Rarely in a hurry, never angry, not easily provoked, he was at his office, as at his home, the truthful, upright, high-minded, courteous Christian gentleman.

"He owes his success to his good judgment and great industry. He never forgot that he had been poor, and his sympathies led him to aid and encourage all young men who were struggling upwards under similar discouragements. He seems always to have cared less to have his own name before the public, than to give prominence to the names and works of others. He was ever of a modest, retiring disposition. He pushed others forward, but kept in the background himself. He wrote little, but what he did write was to the point. His great aim in life was to publish a good agricultural journal, and make it useful to the community. It is probably not too much to say that he has prepared more manuscript for the press, than any other agricultural editor of this or any other country. It was of late years his daily, almost hourly work. Manuscript which many an editor would have thrown into the waste-paper basket, he put into shape and gave to the public. In looking over the back volumes of the Genesee Farmer, Cultivator, Horticulturist, and Country Gentleman, we are impressed with the astonishing amount of work he has been able to do during his long and useful life, and to do it so well. The secret of it all is that he was never in a hurry and never idle."

The American Fruit-Drier.

Samples of various dried fruits of rare excellence were recently exhibited at this office. Apples, peaches, pears, grapes, berries, and corn, which were examined, seemed to have lost little

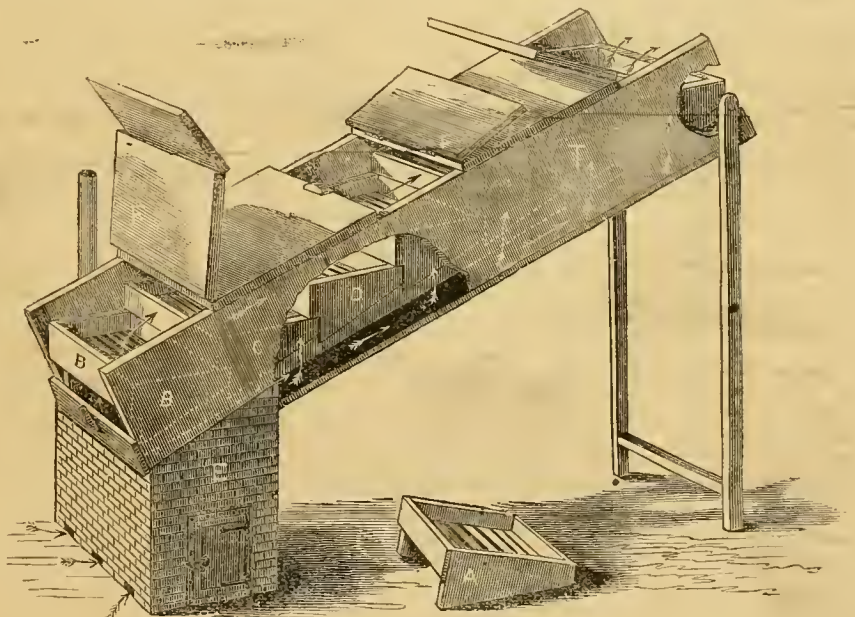
except the water which formerly gave them plumpness, and a larger proportion of the sweetness and proper flavor was retained than in any fruit we had previously seen. On examining the method by which such products were obtained, we found it of such simplicity, cheapness, and certainty, that its importance to the readers of this paper, both fruit-growers and consumers, warranted its being brought prominently to their notice in these columns. The apparatus, "The American Fruit-Drier," is here illustrated.

Its essential parts consist of—1st, a box or tube (T), one end of which is supported by brick-work (E); the other end rests on adjustable supports, by which the box (T) can be elevated to any desired angle; 2d, slat-bottomed trays (A B C D) for receiving the fruit. These trays when placed in the box (T) rest on cleats, in which notches are cut, on which the lower edges of the trays rest. Inside the brick-work (E), the heating apparatus is placed. This may be a wood or coal stove, or a steam coil, or other suitable heater. When in operation, the heater being ready, a tray (A) filled with fruit is introduced at the lower end of the box immediately over the heater, and the box is closed by shutting the hinged covers (E). The hot air now passes up through the fruit, carrying with it a portion of its moisture, and finds egress at an opening at the upper end of the box. This opening may be

two flues are made by the continuous line of trays. The hot dry air passes along the lower flue, and up through the fruit, ready to absorb and carry away its moisture; the hot moist air, emerging from a tray, passes along above the fruit through the upper flue to the exit. The apparatus is patented, but the company owning the patent make terms so favorable, that most farmers or others having an orchard or fruit-yard, will find it profitable to use it in saving their surplus fruit.

Disgusted with Farming.

A Northern gentleman who bought a cotton plantation in Mississippi, writes a private letter to one of the editors of the *American Agriculturist*, from which we make a few extracts. He says: "I read the *Agriculturist* with much pleasure. You advise farmers to 'stick to the farm,' and I have concluded to stick, though I am pretty thoroughly disgusted with farming and planting generally. 'My Summer in a Garden,' by Warner, is about my experience. You have probably read that article in the Cincinnati Times headed 'Agriculture a Fraud.' He says: 'The fact is, agriculture would demoralize a saint. I was almost a saint when I went into it. [We doubt whether this is true of our



THE AMERICAN FRUIT-DRIER.

protected from dust by a screen of netting. By the time another tray of fruit is prepared, the first is sufficiently dry to be pushed forward one notch by introducing the second tray at the lower end. In this way successive trays are introduced, and the preceding trays pushed forward until the first one reaches the upper end. By the time this is done, in fair drying weather, the fruit is ready to be taken out and packed for market. The smallest sized apparatus, as usually made, will keep two persons employed paring fruit ready for the Drier. This is rapid work, and its rapidity, and also the excellence of the dried fruit when turned out, is due to the arrangement of the trays in the box.

In driers heretofore made, the trays have been arranged one above the other, so that the hot air from lower trays passed through those above. This in its passage became steam, gave the fruit a cooked taste, carried away much of the aroma, and had little drying power after passing through several trays. In the American Drier,

correspondent.] I'm a demon now. I'm at war with everything. I fight myself out of bed at four o'clock when all my better nature tells me to lie until seven. I fight myself into the garden to work like a brute, when reason and instinct tell me to stay in the house and enjoy myself like a man. I fight the pigs, the chickens, the moles, the birds, the bugs, the worms—everything in which there is the breath of life. I fight the docks, the burdocks, the mulleins, the thistles, the grasses, the weeds, the roots—the whole vegetable kingdom. I fight the heat, the frost, the rain, the hail—in short, I fight the universe and get whipped in every battle." This," continues our correspondent, "is what I have been doing for the last six years, and now I have a fancy to take a rough-and-tumble fight with a Cotswold ram, and shall probably add another defeat to the list. Can you tell me where to get a good one?" See our advertising columns. Farming at the South has its drawbacks as well as farming at the North. Better as a rule stay

Analyses of Twelve Samples of Guanos for New York State Agricultural Society—1 to XI inclusive, Peruvian Guanos (?)—XII Superphosphate.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.
Moisture @ 100 deg. C., direct determination	12.546	10.220	12.049	12.357	13.715	14.734	9.271	14.812	12.714	11.463	18.299	20.172
*Organic Matter and Ammoniacal Salts	23.685	19.440	22.498	23.156	46.134	41.736	31.381	42.772	43.030	23.411	43.374	26.111
**Phosphates	10.983	9.496	13.154	13.261	18.648	29.805	14.978	13.579	13.963	12.338	22.248	15.685
***Alkaline Salts, etc., soluble in warm water	5.770	5.650	6.000	5.350	12.950	12.050	7.350	11.700	11.350	5.100	11.000	11.000
Sand and Silica, etc.	39.037	46.764	35.691	35.504	2.929	1.973	29.792	10.827	17.639	37.184	1.566	1.566
Undetermined	7.979	8.430	10.308	10.309	5.624	5.711	7.225	6.780	1.404	10.485	3.563	1.862
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	73.830
*Containing NITROGEN	5.021	3.732	4.812	5.030	10.972	10.051	6.678	9.035	9.035	4.716	10.639	2.871
Equivalent to AMMONIA	6.197	4.532	5.845	6.095	13.324	12.204	8.163	10.972	10.972	5.731	12.191	3.486
**Containing INSOLUBLE PHOSPHORIC ACID	5.031	4.350	6.163	6.076	8.342	9.330	6.361	6.330	6.395	5.691	10.191	7.185
Equivalent to BONE PHOSPHATE												
***Containing SOLUBLE PHOSPHORIC ACID	2.920	1.698	2.300	2.175	7.308	6.384	2.977	5.648	5.552	2.191	6.123	6.335
Equivalent to BONE PHOSPHATE	6.374	3.707	5.021	4.748	15.954	13.964	6.499	12.370	12.120	4.789	13.364	13.830
Total Phosphoric Acid	7.951	6.048	8.463	8.251	15.530	15.914	9.438	11.863	11.948	7.855	16.313	13.520
Ash (in genuine Peruvian Guano—80 to 33 per cent)	63.754	70.340	63.453	61.487	40.151	40.450	39.345	42.885	44.256	65.127	33.412	43.717
Adulterations (Nos. viii and ix inferior)	Sand.	Brick-dust	Brick-dust	Brick-dust			Sand.			Brick dust		

where you are, whether it is at the East, North, South, or West, than to move in hopes of finding some place where crops will grow without labor, or animals thrive without attention. If you move at all, let it be to some place where you think there is more work to be done and better pay for doing it.

A Movable Wire Fence.

A year ago this month, we gave an illustration of a fence of wood and wire—called a *Prairie Fence*—invented by Thomas H. Speakman, of Philadelphia. Since then highly favorable reports have been made upon it by committees of the Delaware County Institute of Science, in which county is the farm of the inventor, and the Agricultural Society of Philadelphia, where he resides. Inquiry having been made for a movable fence, Mr. Speakman turned his atten-

bolts, and may be readily carried from place to place by laying the panels on a couple of sixteen feet boards, on a cart or wagon. It is estimated to cost about the same as the permanent fence before alluded to, and fully one third less than the wooden fences in ordinary use. To answer inquiries in advance, we will say that the fence is patented by the inventor.

Guano—As Sold in New York.

To the Executive Committee of the New York State Agricultural Society:

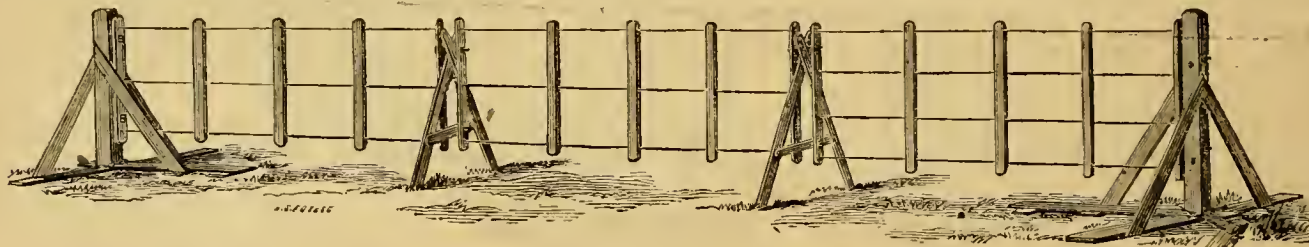
The undersigned having been appointed a Chemical Committee under the resolution of the Executive Committee passed May 4th, 1872, and instructed to obtain samples of guanos sold at retail in the city of New York, and to have them analyzed by Mr. William M. Habirshaw (analyst to the chemical trade of that city), who

Co., the agents of the Peruvian Government in New York City, a bag of Guanape Guano, numbered 11, and of the Manhattan Manufacturing and Fertilizing Company, a bag of their nitrogenized superphosphate, sold under the name of Phosphatic Blood Guano, numbered 12 in this report.

That the several bags so purchased were conveyed to the residence of Mr. Cocks as speedily and directly as possible, and there carefully sampled by your committee, the samples put into sealed glass jars and numbered I to XII (1 to 12), as above, and delivered to Mr. Habirshaw for analysis.

That on the 21st day of October they received the report and analyses of the said 12 samples from Mr. Habirshaw, as given in the accompanying table, dated New York City, October 10th, 1872.

For the purpose of showing how largely the several samples vary in value, we append the



SPEAKMAN'S PORTABLE FENCE.

tion to that, and the result is shown in the illustration. The fence consists of four separate parts—1. The end or straining posts; 2d. The triangular horses which fill the places of intermediate posts; 3d. The panels, sixteen feet long, made of wire and wood as shown; and 4th. Common half-inch screw-bolts, by which all the other parts are secured together.

The manner of putting it up, is first to anchor one of the straining posts to the ground at the starting point, by fastening it with wire or a chain to a stake firmly set in the ground, as represented at the right of the cut. The first panel is then bolted to this post and the forward end of it connected to the second panel by two bolts, which pass also through the horse; the nuts being only screwed up their own thickness. The panels are then set up one after another in the same way—being drawn as tight as they can be by hand, and temporarily propped at intervals, to retain the tension thus gained. When the farther end is reached, connection is made to the other end post, which is anchored to the ground the same as the first. The wires are then tightened at pleasure by screwing up as many of the nuts as may be necessary.

This fence is effective and can not blow over. Any number of strands of wire may be used, according to the kind of stock to be stopped. It is readily taken apart by undoing the screw-

had offered his services to the Society for this investigation, respectfully report:

That they caused to be purchased of each of the dealers and firms named below, one bag of guano at the dates and prices below stated, and numbered the same as below, the same numbers being referred to in the analyses given in this report:

- Aug. 6, 1872.—1. Robert C. Reeves, 185 and 187 Water st., 1 bag guano, 170 lbs., \$6.37.
- Aug. 9, 1872.—2. E. H. Reeves & Co., 184 and 195 Water st., 185 lbs. guano, \$6.94.
- Aug. 6, 1872.—3. Decatur & Cox, 197 Water st., 179 lbs. guano, 33c., \$6.72.
- Aug. 9, 1872.—4. Geo. Ricardo, 195 Water st., 1 bag guano, 173 lbs., at 33c., \$6.67.
- Aug. 6, 1872.—5. Vanderbilt Brothers, 23 Fulton st., 1 bag Peruvian guano, 162 lbs., at 33c., \$6.07.
- Aug. 6, 1872.—6. John Moore, 193 Front st., 1 bag guano, 161 lbs., \$6.04.
- Aug. 6, 1872.—7. E. A. Reeves, 53 and 60 Cortlandt st., 1 bag No. 1 Peruvian guano, 197 lbs., at 4c., \$7.88.
- July 23, 1872.—8. R. H. Allen & Co., 189 and 191 Water st., 1 bag guano, 170 lbs., at 4c., \$6.80.
- July 26, 1872.—9. Chapman & Van Wyck, 170 Front st., 1 bag No. 1 Peruvian guano, 168 lbs., at \$75 per ton, \$6.30.
- Aug. 9, 1872.—10. George E. White, 160 Front st., 1 bag No. 1 Peruvian Chinch, 180 lbs., at 4c., \$7.20.

That these purchases were all made by Mr. Cocks, of your committee, and shipped to his farm at Old Westbury, L. I., by railroad.

That for purposes of comparison your committee obtained of Messrs. Hobson, Hurtado &

following results of a computation in which it was assumed that the value of nitrogen is 17 cents in gold per lb., and of phosphoric acid 10 cents in gold per lb., and that no other constituents should be taken into account. The values were thus computed for each of the samples, I to XI, per ton of 2,000 lbs., and are (in gold) as follows:

No. of sample.	I.	II.	III.	IV.	V.	VI.
Value	\$32.97	\$24.78	\$33.23	\$33.56	\$69.00	\$65.99
No. of sample.	VII.	VIII.	IX.	X.	XI.	
Value	\$42.35	\$54.44	\$54.60	\$31.74	\$66.75	

We desire to be clearly understood that these results as regards manurial values are given merely for the sake of enabling persons who may take an interest in the subject to compare the results above given; and that it is not intended by your committee to assert that the assumed standard of values or method of computation is correct—still less that the figures given represent the true or even the approximate value to the farmer of the several samples.

Your committee further report that their expenses have been \$75.30 for purchase of samples, and that their account for the same has been paid by the treasurer; also, \$8 traveling expenses of Mr. Gould, not yet paid.

JOHN STANTON GOULD, } Committee.
ISAAC H. COCKS, }

The above comes to us from Mr. Harrison,

the Secretary of the N. Y. State Agricultural Society, and we give it place as an official document. Some of the figures given in the table are different from those published in other papers, which is due to our having corrected typographical errors at the request of the Secretary. This document would have carried much more weight with it had the Committee aimed at getting a correct "standard of values and method of computation," as without this the whole report is "much ado about nothing." Although it will offend several very excellent people, we are glad that the Society has presented these analyses. There are several houses mentioned as having sold poor guano who would not, in our opinion, knowingly do an unfair thing. It will benefit these dealers, inasmuch as it will make them careful hereafter as to the quality of the article they sell. The Manhattan Fertilizing Company think, and justly, that the analysis of their product should not have been published by the side of analyses of Peruvian guanos, but in contrast with other superphosphates. It must be borne in mind that there is more than ever need that dealers and purchasers should have an analysis of their guano, as that brought from Peru is much more variable than formerly—some of the "genuine" being nearly worthless. There should be a law in every State regulating the sale of fertilizers, as there are few things so susceptible of adulterations which the well-intentioned retailer and the farmer are unable to detect. Sausages and guano are always purchased "upon honor."

Ogden Farm Papers.—No. 37.

A part of my last day in London was passed with Dr. Augustus Voelcker, the chemist of the Royal Agricultural Society, and one of the most efficient agents in the improvement of the agriculture of England. Although he is not, and I think never has been, a farmer, the most practical of our practical farmers could not fail to appreciate the value of the services that his chemical knowledge and his strong common-sense have enabled him to render. His contributions to the Journal of his Society, especially those on the use of clover as a preparatory crop for wheat, and on the treatment of farm-yard manure—are well known in America, and they have had much influence in modifying the writings of our agricultural teachers. They have done more than any other articles with which I am acquainted, to reconcile the teachings of science with the methods of practice—or rather they have shown that, in two important particulars, the practice was right and sound, and the opposing recommendations of the chemists were founded on a misapprehension of the scientific facts. He showed in the case of clover that not only might an immense crop be taken from the soil without exhausting it, but that in its growth (it being a vigorous feeder) it searched out from the hidden recesses of the soil, and took from compounds which were really out of the range of the feeding powers of other plants, an abundant supply of nutriment, which it converted from practically inert matter to organized vegetable matter. Of this, a very large proportion is stored up in the roots, so that although we may remove all the stem and leaf of a whole season's growth—and with it a large amount of matter which has been supplied from the soil—yet, the roots, which remain to decay, yield a great increase to the soil's stock of available mineral plant-food, to say

nothing of the carbonaceous matter (taken from the atmosphere) which, in the decomposition of the roots, performs the various mechanical and chemical offices of manure. His was not the first nor has it been by any means the only statement of this general fact, but he stated it more clearly and more convincingly than any other writer with whose works I am acquainted.

In connection with the subject of the treatment of farm-yard manure, his investigations have taken a somewhat more original character, and his explanations have been of more practical value. We had been taught that from the time when the manure was first voided by the animal it was subject to constant loss from the evaporation of ammonia—its most valuable ingredient—and that consequently it was the only safe plan to compost it with muck or some other absorbent material. Dr. Voelcker proved, by a series of analyses of manure at different stages of decomposition, and after various sorts of treatment, that there is no *formation* of volatile ammonia except when the mass is sufficiently large for the accumulation of enough heat to favor an active decomposition, and that even then there is no *evaporation* of ammonia, for the reason that the organic acids which are simultaneously formed—are always sufficient to take it up and form non-volatile compounds. At the same time, although these compounds are not subject to evaporation, they are highly soluble, and the juices flowing from the dung-heap, and the rain-water passing through it, remove it most easily. Consequently, it is of the greatest importance that manure should be kept under cover—if it is kept in store at all. The most important deduction from these investigations is, that the much-reiterated recommendation of agricultural writers that on no account should manure be taken to the field (unless to be composted) until it could be almost immediately plowed under the soil, was not well founded. The best practice of all, is one which many of the most successful farmers have always followed—and against which the agricultural press has leveled its biggest guns—the practice, namely, of hauling manure afield as soon as a few loads have accumulated, spreading it at once over the ground, and plowing it under early or late or not at all, according to circumstances; the best effects following its application to the surface of grass-land, or its harrowing into the very topmost film of plowed land. In neither of these cases can ammonia escape, because no volatile ammonia is formed, while the soluble parts—and all becomes soluble in time—are distributed through the soil by the water of rains the more evenly, the nearer to the surface they lie. When they are once absorbed by the soil they are held in an available form until required by the roots of plants. Of course, this is too short a statement of the deductions of an elaborate investigation to give a very fair idea of it. My object is only to suggest the very important service it has rendered to agriculture.

I found Dr. Voelcker a cordial, energetic, hearty, middle-aged German, speaking English well, and with just sufficient slowness, and "accent," to emphasize his expressions. His offices are filled with books, cases of specimens of phosphatic rocks, guano, linseed cake, rape-cake, cotton-seed cake, superphosphates, marls, and all manner of things with which it is his province as an agricultural chemist to deal, and the professional-looking bottles and retorts which always accumulate about such an establishment. Our talk took the direction of practical matters,

and it may be interesting to sketch some of the leading features of what I heard. (I merely condense his own statements as I recall them.)

The question of using sewage in English agriculture is by no means settled; thus far the experiments are more often failures than successes; the Earl of Warwick's farm at Leamington and the Corporation's Farm at Croyden are profitable, the others (there are many) are usually failures. The difficulties are of two sorts:

First, the drainage must be complete and thorough (either naturally or artificially)—indeed this would be the case if only the purest water were used, for all arable soils contain organic matter which is constantly undergoing decomposition, and healthy decomposition requires the action of air; if the land is not drained, the water fills it, prevents the entrance of air, and causes the decomposition either to assume an unhealthy form or to be arrested at an intermediate stage. In either case, the resulting compounds are of an offensive character and are poisonous to the cultivated plants. As an example of this, suppose we have a cylinder, say 2 feet high, filled with ordinary surface-soil, and with a hole at the bottom for drainage; every day we pour upon this enough clear water to saturate it. The surplus water will escape through the outlet, air will enter the soil to fill the spaces the water has vacated, a healthy decomposition of the organic matter will take place, and a plant growing on the soil will thrive. If, now, the hole be stopped, so that no water can escape, and if enough be added from day to day to keep the soil saturated, no air can enter, the plant will die, fungi or other low forms of vegetation will appear, and at the end of a fortnight of moderately warm weather, if the soil be turned out, it will be found to have become a stinking, putrid mass, unfit for the growth of any of the cultivated plants. The same thing occurs in farming on a large scale. Whether for sewage farming or in ordinary irrigation, unless the land is well drained, more harm than good will be done by the use of large quantities of water during growing weather. And, indeed, if we have only to consider the water of rains or of springs, we may satisfy ourselves that the good or the ill effect will be in direct proportion to the degree in which the natural or artificial drainage allows the water to subside and fresh air to enter to take its place. If the saturation is complete, we have swamp rushes, skunk cabbage, and mosses. If the drainage is perfect, we have sweet and nutritious herbage. If the land is half-drained and half-drowned, we may sow good seed, but in time coarse and innutritious plants will usurp the ground and the profit of our farming will suffer. (It seemed to me that the Doctor stated the fundamental theory of drainage more briefly and more clearly than some of its special professors have succeeded in doing.) In sewage farming, the quantity of water used is so large, and the impurities it contains are so considerable, that the necessity for ready filtration and for the free ingress of air is so great that it can succeed only on a light soil, and only with plants which will bear such conditions.

Second: It is an important condition of success that a ready market be found for green grass, which is the sheet-anchor of sewage farming. You grow enormous crops—sometimes 100 tons per acre in a season, and you can not make it into hay by any process now discovered (if you could, it would make 18 tons of well-dried hay per acre)—and you must find a market then and there. This you can do only by

making contracts with small cow-keepers, stablemen, and such people, who are usually a nuisance to have coming daily to the farm, and whose money needs sharp-looking after—or else you must keep such a stock of your own during the growing season as will make your business very cumbersome. Plants grown with sewage are not so nutritious as natural grasses, and it is doubtful whether they are not, to a certain extent, less healthful food. Probably, too, the milk which they produce is less desirable. Sewage contains nothing which might not be converted in the soil into good plant-food, but it is used in such large quantities that there is not time for its complete conversion, and there is no doubt that there are organic impurities in the sap of sewage grasses which do not exist in plants grown under more natural conditions. Still, the fact exists that the better examples of sewage farming prove the possibility of reconverting the wastes of the population into available food, and if the same amount of sewage could be used over larger areas, there would be nothing objectionable in its effect on plants fertilized by it.

Much of the effect of sewage irrigation could be equally well produced by irrigation with river water, and where water is at command it may be made a good medium for the distribution of farm-yard manure over land of the proper conformation.

The Peruvian guano now exported from the guano islands is of very irregular quality. Different cargoes and even different parts of the same cargo vary very much in composition, and still more in their texture. Frequently the whole body is almost pasty, from excess of moisture, and frequently the ammonia is crystallized out of the mass, forming what seem to be bits of stone, and these (which are much the richest portion) are thrown out by the farmer as of no value. Indeed, as they exist, they are positively injurious, being so strong as to destroy vegetation, concentrating at a single point an amount of ammonia which should be spread over a square yard or more. All these guanos should be dried, ground, and treated with 20 per cent of sulphuric acid, to fix the ammonia. They will then become of more uniform quality, and can safely be bought by analysis.

The phosphatic minerals are used very largely as the basis of superphosphate of lime, taking the place of bones. They require rather expensive grinding, and the addition of more sulphuric acid in proportion to their content of phosphoric acid, than bones do; but the manure produced by them is valuable, the only precaution necessary being to learn the quality of each lot by chemical analysis. The Southern States are a great market for superphosphate made in England from Carolina phosphates, which are imported into England in large quantities as the ballast of cotton ships.

(It would seem that we ought to be able to

save these two ocean voyages, and to make our own superphosphate at home.)

In England, where superphosphates are cheaper than in America, it is considered profitable to import American cotton-seed cake to use as manure, crushing it for the purpose with the ordinary hand-machines, which are used to prepare it for sheep-feeding, and used in the



EXTRA EARLY VERMONT.

condition in which we get it (ground to a fine meal) there should be still greater economy in using it in America. This meal is the richest of all available forms of food, and the manure resulting from its use is better than that from any other food; but it is too rich to be used alone. It should be mixed with an equal quantity of Indian meal and a little bran. In this condition it is excellent for all uses.

I have gone thus fully into the details of my interview with Dr. Voelcker because they seem to me to be suggestive of many things, which



COMPTON'S SURPRISE.

my readers will find profit and interest in considering; and because they may indicate—though of course such a slight sketch as this falls far short of doing him justice—something of the character of a gentleman to whom all English and American writers on agriculture owe, directly or indirectly, a good deal of what is worth reading in their productions.

Two New Potatoes.

Last year did not bring out so many new potatoes as the few years just preceding, as at present a new candidate for public favor must have remarkable excellence to entitle it to con-

sideration. Messrs. B. K. Bliss & Sons offer two new ones, both of which we have tried upon the table, and one of which we grew last season.

The Vermont Extra Early (which will soon be known as Vermont) is the variety mentioned last September, in "Notes from the Pines," as "That Potato." It is claimed to be a cross between Jackson White and Garnet Chili, and was raised by Mr. George W. Woodhouse, West Rutland, Vt. At "The Pines" it was in all stages of its growth fully ten days in advance of the Early Rose, an experience similar to that of others who experimented with it in different parts of the country.

Compton's Surprise was raised by D. H. Compton, of Hawley, Pa., from the Prince Albert, fertilized by the Long Pink-Eye. The tuber is of good size, dark purple in color and, as a table potato, of thoroughly excellent quality. Its great claim in addition to its good quality, is its enormously prolific character. Mr. Compton, who seems to be a very fair man and quite in earnest, states that he grew it at

the rate of over eight hundred bushels to the acre! We hope to try this variety next season, and be able to speak from experience. At present we give the story upon Mr. Compton's authority. The engravings are made from specimens of medium size, and fairly represent the characteristics of the two varieties.

The Morgan Horse.

On the first page will be found an engraving of the head of a Morgan horse. This class of horses possesses those valuable qualities which make them particularly desirable as horses of all work. They have a neat style, great intelligence and honesty, quickness and sprightliness of movement, and without having extraordinary speed have great powers of endurance. They are generally considered as able and willing to maintain a speed of ten miles an hour for several hours in succession, and although some horsemen are inclined to deny the possession of this extreme courage and endurance, yet they are fairly entitled to that character. They rarely if ever exceed fifteen and a half hands, and the original Morgan horse, or Justin Morgan, stood

only fourteen hands, and weighed but 950 pounds. They are well and compactly built; the forehead, the chief point of family likeness, is broad, the ears small and fine and set wide apart, the head small and bony, the eyes small, dark, and prominent, the nostrils large, the muzzle small, and the lips close and firmly set. The manes and tails of these horses are heavy and abundant. Their feet are good, and their walking gait, so desirable in a work-horse is generally fast. For light work upon the farm or as roadsters, they are a valuable class of horses, and their good qualities go to add one more laurel to the Green Mountain State, which claims the honor of having originated the breed.

Trapping the Mink.

BY O. S. BAYLEY.

The Mink, so highly valued for its fur, being an amphibious animal, is equally at home upon the land or in the water. It is widely distributed, being an inhabitant of the South as well as

The next thing is the bait. This should be small fish of two or three ounces weight. In the absence of fish, the carcass of the ground-squirrel, or a piece cut from the body of a muskrat, will answer the purpose well. Mice and frogs also make a very good bait. Having provided these essentials, the trapper is ready for work.

If there is a lake or pond near, with numer-

trap set as near to shore as possible, and yet be entirely covered with water. The trap is set under water, not because a Mink would not be as likely to enter if set on land, but to prevent squirrels, cats, weasels, and other worthless game from being caught.

For a tally-stick, a bush of the size of a man's thumb is cut, and thrust through the ring on the



Fig. 1.—TRAPPING THE MINK IN STREAMS.

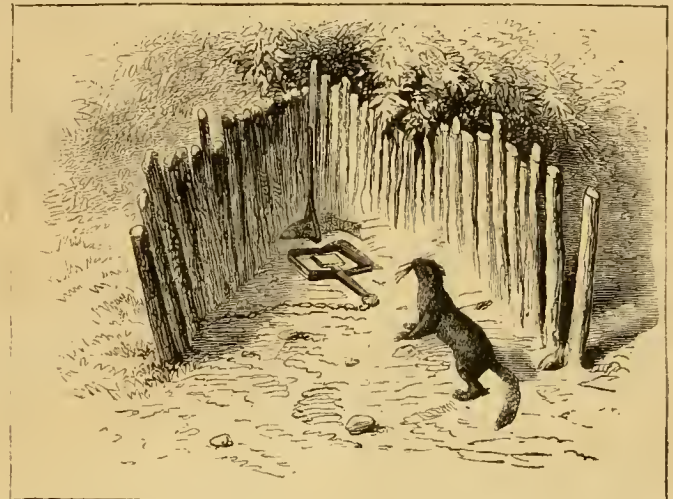


Fig. 2.—TRAPPING THE MINK ON LAND.

of the frozen regions of the North. He ranges both in woodland and meadow, usually following the course of some stream, and often passing in his wanderings through thickly inhabited districts. A small stream issuing from a swamp, or a brook which has its source in some pond, is, if well stocked with fish, his favorite haunt.

From their extremely rapid movements and nocturnal habits, it is seldom that minks are seen by the ordinary observer; hence they may be comparatively plenty in localities where they were not supposed to exist. Small fish form their principal food, and are caught with surprising readiness. They sometimes traverse the shores of ponds in quest of food. The Mink kills and eats birds and many of the smaller quadrupeds, even mastering those of twice its size, often destroying them, as it would seem, in sport, or merely for the purpose of drinking their blood. Sometimes it approaches a farmhouse and works havoc among the poultry, usually escaping undetected.

The relentless-ness with which trapping has been pursued has threatened, in some localities, the extermination of the Mink, and the legislature

of at least one State has properly made it punishable by fine to kill a mink between the months of March and November following.

The trapper first procures a sufficient number of small steel traps to cover the territory he intends to occupy. A trap with one spring is preferred, as it is easily set and is fully reliable. A strong chain, some two feet or more in length, with a ring at the end, is attached to the trap.

ous small streams falling into it, he takes an easy-running boat, and makes a circuit of the shore. Having approached one of these tributary streams, he ascends it for a short distance, to find a convenient place for depositing the traps, sets two to four, returns, and passes on to the next stream. At intervals of about four or five days the trapper visits the traps, for the purpose of taking out game and rebaiting.

Sometimes the trapper makes up his pack, and takes a circuit through the country, so as to strike as many different streams as possible. At each crossing he puts in two or more traps. This is done on the supposition that, if there is game in the neighborhood, it will be likely

chain. No other fastening is necessary, as there is no danger of the game escaping with the trap.

A stick is thrust into the bed of the stream in a slanting direction over the trap. On this the bait is hung, about fourteen inches above the trap. A few leaves stuck on the end of the bait-rod, so as to cover the bait, will keep it moist, and prevent birds from disturbing it.

It is rare that a mink breaks away from the trap if fairly caught, but from humane reasons alone, it is always best to arrange the tally-stick so that he can, plunge into deep water and drown himself. This he is almost certain to do, in six or eight inches of water.

Another plan adopted by many skillful trappers, is to form a triangular inclosure by driving short stakes into the ground, as shown in fig. 2. One side is left open for an entrance, and for a cover a few ever-green boughs are used. The bait is pinned by a forked stick to the ground in the point of this inclosure, and the trap set in front in such a manner that the game must pass over it in order to reach the bait.

The season for trapping the Mink is of short duration—from March till late in the month of



A SMITHFIELD PRIZE-OX.—(See next page.)

to pass traps set at any given point upon the stream, in due course of time.

The manner of depositing the trap and bait is somewhat peculiar. Unlike the cautious and sagacious Fox, the Mink seems to have no fear of a naked trap, and cares but little for any traces left by the hand of man; hence the precaution necessary in setting a fox-trap is not required.

A place is selected in shallow water, and the

October. The fur is short, pale, and almost lusterless. As soon as frosty nights occur, the fur begins to lengthen, deepens in color, and acquires the silken texture and beautiful luster which are so admired, while the flesh side of the pelt turns from a bluish black to an almost snowy whiteness. The fur is now in its best condition. From this time until cold weather stops his operations, is the hunter's harvest. In the

Southern States the Mink may be trapped all winter, but pelts taken in that mild climate are far inferior to those caught in more northern latitudes.

A Smithfield Christmas Prize-Ox

At the Seventy-fourth Annual Smithfield (London) Cattle Show, held just before last Christmas-day, at which the beasts fed expressly for the London Christmas markets were exhibited, the ox represented on the preceding page took the first prize. He was a black polled ox of the Scotch breed. His weight was 2,500 pounds. He was three years and eight months old, and was fed by Mr. James Bruce, of Burnside, Elgin. His feed had been grass, turnips, hay, beans, meal, oil-cake, and medicated cattle food. It is not usual that an ox of the polled breeds should take the precedence of the Short-horn Herefords or Devons at these shows, and the fact that this did so shows the capabilities of these hornless breeds for taking on flesh. If these breeds have equal feeding qualities with the horned breeds, they would be found very desirable in cases where beeves have to be shipped hundreds of miles by rail to market. We have already pointed out their value in this respect, and now show what they are capable of in the way of making beef.

Walks and Talks on the Farm.—No. 111.

One of my correspondents writes: "If high farming will not pay, low farming will bring a man and his family to short commons, if not to the poor-house." I suppose this remark refers to something I have said in my Walks and Talks against an indiscriminate advocacy of high farming. There are people who recommend "high farming" in all cases. I do not. But it is useless to discuss the matter until we have first settled what we mean by high farming. I have no doubt that if I knew exactly what my correspondent means I should agree with him. He probably means to say, "If raising large crops will not pay, raising poor crops will bring a man to short commons," etc. And this is a proposition to which I heartily assent. In fact, I have said the same thing over and over again. It is precisely what I am trying to do on my own farm. I am aiming to get 35 bushels of wheat per acre, 80 bushels of shelled corn, 50 bushels of barley, 90 bushels of oats, 300 bushels of potatoes, and 1,200 bushels of mangel-wurzel per acre on the average. I can see no way of paying high wages except by raising large crops *per acre*. But if I get these large crops it does not necessarily follow that I am practicing "high farming."

To illustrate: Suppose I should succeed in getting such crops by adopting the following plan. I have a farm of nearly 300 acres, one quarter of it being low, alluvial land, too wet for cultivation, but when drained excellent for pasturing cows or for timothy meadows. I drain this land, and after it is drained I dam up some of the streams that flow into it or through it, and irrigate wherever I can make the water flow. So much for the low land.

The upland portion of the farm, containing say 200 acres, exclusive of fences, roads, buildings, garden, etc., is a naturally fertile loam, as good as the average wheat land of Western New York. But it is, or was, badly "run down." It had been what people call "worked

to death;" although, in point of fact, it had not been half-worked. Some said it was "wheated to death," others that it had been "oated to death," others that it had been "grassed to death," and one man said to me, "That field has had sheep on it until they have gnawed every particle of vegetable matter out of the soil, and it will not now produce enough to pasture a flock of geese." And he was not far from right—notwithstanding the fact that sheep are thought to be, and are, the best animals to enrich land. But let me say, in passing, that I have since raised on that same field 50 bushels of barley per acre, 33 bushels of Diehl wheat, a great crop of clover, and last year, on a part of it, over 1,000 bushels of mangel-wurzel per acre.

But this is a digression. Let us carry out the illustration. What does this upland portion of the farm need? It needs underdraining, thorough cultivation, and *plenty of manure*. If I had plenty of manure, I could adopt high farming. But where am I to get plenty of manure for 200 acres of land? "Make it," says the Deacon. Very good; but what shall I make it of? "Make it out of your straw and stalks and hay." So I do, but all the straw and stalks and hay raised on the farm when I bought it would not make as much manure as "high farming" requires for five acres of land. And is this not true of half the farms in the United States to-day? What, then, shall we do?

The best thing to do *theoretically* is this: Any land that is producing a fair crop of grass or clover, let it lie. Pasture it or mow it for hay. If you have a field of clayey or stiff loamy land, break it up in the fall, and summer-fallow it the next year, and sow it to wheat and seed it down with clover. Let it lie two or three years in clover. Then break it up in July or August, "fall-fallow" it, and sow it with barley the next spring, and seed it down again with clover.

Sandy or light land, that it will not pay to summer-fallow, should have all the manure you can make, and be plowed and planted with corn. Cultivate thoroughly, and either seed it down with the corn in August, or sow it to barley or oats next spring and seed it down with clover. I say, *theoretically* this is the best plan to adopt. But practically it may not be so, because it may be absolutely necessary that we should raise something that we can sell at once, and get money to live upon or pay interest and taxes. But the gentlemen who so strenuously advocate high farming are not perhaps often troubled with considerations of this kind. Meeting them, therefore, on their own ground, I contend that in my case high farming would not be as profitable as the plan hinted at above.

The rich alluvial low land is to be pastured or mown; the upland to be broken up only when necessary, and when it is plowed to be plowed well and worked thoroughly, and got back again into clover as soon as possible. The hay and pasture from the low land, and the clover and straw and stalks from the upland, would enable us to keep a good many cows and sheep, with more or less pigs, and there would be a big pile of manure in the yard every spring. And when this is once obtained, you can get along much more pleasantly and profitably.

"But," I may be asked, "when you have got this pile of manure, can not you adopt high farming?" No. My manure pile would contain say: 60 tons clover hay; 20 tons wheat-straw; 25 tons oat, barley, and pea straw; 40

tons meadow hay; 20 tons corn-stalks; 20 tons corn, oats, and other grain; 120 tons of mangel-wurzel and turnips.

This would give me about 500 tons of well-rotted manure. I should want 200 tons of this for the mangels and turnips, and the 300 tons I should want to top-dress 20 acres of grass land intended for corn and potatoes the next year. My pile of manure, therefore, is all used up on 25 to 30 acres of land. In other words, I use the unsold produce of 10 acres to manure one. Is this "high farming"? I think in my circumstances it is good farming, but it is not high farming. It gives me large crops per acre, but I have comparatively few acres in crops that are sold from the farm.

"High farming," if the term is to have any definite meaning at all, should only be used to express the idea of a farm so managed that the soil is rich enough to produce maximum crops *every year*. If you adopt the system of rotation quite general in this section—say, 1st year, corn on sod; 2d, barley or oats; 3d, wheat; 4th, clover for hay and afterwards for seed; 5th, timothy and clover for hay; and then the 6th year plowed up for corn again—it would be necessary to make the land rich enough to produce say 100 bushels shelled corn, 50 bushels of barley, 40 bushels of wheat, 3 tons clover hay, and 5 bushels of clover seed, and 3 tons clover and timothy hay per acre. This would be *moderate* high farming. If we introduced lucern, Italian rye-grass, corn-fodder, and mangel-wurzel into the rotation, we should need still richer land to produce a maximum growth of these crops. In other words, we should need more manure.

The point I am endeavoring to get at is this: Where you want a farm to be self-supporting—where you depend solely on the produce of the farm to supply manure—it is a sheer impossibility to adopt high farming on the *whole of your land*. I want to raise just as large crops per acre as the high farmers, but there is no way of doing this, unless we go outside the farm for manure, without raising a smaller area of such crops as are sold from the farm.

I do not wish any one to suppose that I am opposed to high farming. There is occasionally a farm where it may be practiced with advantage, but it seems perfectly clear to my mind that as long as there is such an unlimited supply of *land*, and such a limited supply of fertilizers, most of us will find it more profitable to develop the latent stores of plant-food lying dormant in the soil rather than to buy manures. And it is certain that you can not adopt high farming without either buying manure directly or buying food to feed to animals that shall make manure on the farm.

And you must recollect that high farming requires an increased supply of labor, and hired help is a luxury almost as costly as artificial fertilizers.

We have heard superficial thinkers object to agricultural papers on the ground that they were urging farmers to improve their land and produce larger crops, "while," say they, "we are producing so much already that it will not sell for as much as it costs to produce it." My plan of improved agriculture does not necessarily imply the production of any more wheat or of any more grain of any kind that we sell than we raise at present. I would simply raise it on fewer acres, and thus lessen the expense for seed, cultivation, and harvesting, etc. I would

raise 30 bushels of wheat per acre every third year, instead of 10 bushels every year.

If we summer-fallowed and plowed under clover in order to produce the 30 bushels of wheat once in three years, instead of 10 bushels every year, no more produce of any kind would be raised. But my plan does not contemplate such a result. On my own farm I seldom summer-fallow, and never plow under clover. I think I can enrich the farm nearly as much by feeding the clover to animals and returning the manure to the land. The animals do not take out more than from five to ten per cent of the most valuable elements of plant-food from the clover. And so my plan, while it produces as much and no more grain to sell, adds greatly to the fertility of the land, and gives an increased production of beef, mutton, wool, butter, cheese, and pork.

I greatly mistake the signs of the times if farmers all over the country do not make an earnest effort to curtail their labor bills the coming season. And I shall be exceedingly glad of it, *provided* it leads to breaking up less land and the more thorough cultivation of the fewer acres under tillage. But if less hired labor means less work *per acre* on land under cultivation, then I think the result will be bad for farmers and bad for the country.

We are going to have better times for farmers in the near future. And now is the time to prepare for them. Get the land ready. Make it clean, and get it into clover and grass. It will then be gaining in fertility, and when the good times come—as come they certainly will—this land can be plowed with a reasonable prospect of producing a good crop. But if you continue to plow as many acres, and undertake to work it with less labor, the chances are that you will get meager crops, and the land will become more and more weedy, and when the good time comes for corn to bring a dollar a bushel where it now sells for 20 cents, and pork and beef bring 10 cents per pound, live-weight, where they now bring 3 cents, you will have little to sell. It will rain porridge, but your dish will not be ready to catch it. History, experience, observation, and common-sense all demonstrate that good times never come to poor farmers. If you can not do anything else towards improving your farm the coming season, let me urge you at any rate to make an earnest effort to kill the weeds. This alone would add millions to the wealth of the country.

"I do not find so much benefit from stirring the soil as I expected," writes a young farmer. "Two years ago, I sowed winter wheat after barley. On half the field I plowed the land twice, and cultivated and harrowed and rolled until it was as fine and mellow as a garden. The other half was only plowed once, and I think the wheat was quite as good on this half as on the part so thoroughly worked."

Very likely. But this does not prove that stirring land does not accelerate the decomposition of the inert organic matter in the soil. You forget that fermentation requires time. You would not think of turning a manure heap half-a-dozen times in a week for the purpose of accelerating decomposition. One good turning and fining would be just as good. Organic matter in the soil decomposes very slowly. It requires time. It is for this reason, among others, that I advocate "fall-fallowing." It ex-

poses the soil for a longer time than the so-called summer-fallow. A true summer-fallow should be plowed in the fall, and again in the spring. This gives the organic matter time to decompose.

In 1859, I wrote an article on the cultivation of wheat, in which I said: "Wheat likes a firm, compact soil; and if left somewhat rough and cloddy, it is none the worse. It is easy to make the surface *too fine and smooth* for wheat." This last statement led to considerable discussion at the time. It seemed to be a new idea to many farmers. But A. B. Dickinson, Sanford Howard, and, I think, John Johnston and George Geddes, indorsed the opinion, and I supposed it was now regarded as a settled fact in agriculture.

Some men naturally run to extremes. If the doctor prescribes a rhubarb-pill, they say, "If one is good, three must be better," and if the result is not pleasant or favorable they blame the doctor. Recommend summer-fallowing clayey soil, and some farmers will summer-fallow a blowing sand. Say three or four plowings in nine or ten months are good, and they will plow half-a-dozen times in two or three months, and blame you if the crop does not come up to their expectations.

Stirring the soil *does* favor the disintegration of the mineral elements of plants and the decomposition of the inert organic matter. This is a well-ascertained fact. But it requires time. And, furthermore, a good deal depends on the soil. It is no use to stir soil that is loose and light enough already. We need work it no more than is necessary to kill the weeds. But on heavy clay soil we must plow more frequently. Said John Johnston: "I get my best crops of wheat when I plow my fallow four times during the summer and use the large wheel-cultivator at least twice; and the better I pulverize my fallow, the better my wheat crop." This is the testimony of one of the oldest, best, and most successful wheat-growers in the United States. His land is a clay loam. When he bought the farm the land was supposed to be almost too poor to pay for cultivation. He has made it one of the most productive farms in the State.

Mr. Ira Cook, of San Francisco, formerly a good Western New York farmer, writes me an interesting account of the wheat crop of California. "Just think of it," he says, "only a few years ago wheat was shipped here from New York to supply bread for the inhabitants; now California is one of the largest wheat-producing States, if not the largest, in the Union." According to the last census, California produced 29½ bushels of wheat to each inhabitant. This was the largest production in proportion to population of any State of the Union except Minnesota, which produced nearly 43 bushels to each person. Oregon stood third, 25½ bushels; Iowa came next, 24½; then Wisconsin, 24½; then Nebraska, 17½; Indiana, 16½; Michigan, 13½; Illinois, 11½; Ohio, 10½; Missouri, 8½; Maryland and Delaware, 7½; Kansas, 6½; Virginia, 6. These are the only States that produce a surplus. Pennsylvania, West Virginia, and Nevada produce 5½, and Tennessee and Kentucky 5 bushels to each inhabitant, or about enough for home consumption. All the other States have to look to the above-named States for more or less wheat. All the old slave States produce less wheat now in proportion to population than before the war, while I suppose the negroes, now they are their own masters, will eat more wheat-flour than formerly. On the

whole, there is nothing in the outlook that need discourage wheat-growers.

Mr. Cook sends me a copy of the San Francisco Bulletin, with an account of three wheat farms in the San Joaquin Valley, the largest of which is 36,000 acres. "The produce of this farm for 1872 was 1,440,000 bushels." This is 40 bushels of wheat from every acre on the farm! The farm is 17 miles long. "At the season of plowing, ten four-horse teams were attached to ten gang-plows—or 40 horses with as many plows were started at the same time, following in close succession. Lunch or dinner was served at a midway station, and supper at the terminus of the field, 17 miles distant from the starting point. The teams returned on the following day."

Mr. Cook asks, "What do you think about it?" I think, 1st. The editor knew no more about farming than some of his newspaper brethren on this side the Rocky Mountains. 2d. I think it is poor farming to put *every acre* of the farm in wheat; I would have reserved a few acres for the support of the teams, etc. 3d. I think I would have had the barns in the neighborhood of the "midway station," and let the men and teams stay at home nights, instead of first at one terminus and then at the other. 4th. I think after the wheat is cut and thrashed, and left in bags on the field, it would keep "forty horses" very busy for over a year to draw it to the most central point on the farm. There would be 43,220 tons of wheat, equal to say 30,000 good two-horse loads. If the wheat on the average was five miles from the barn, and the horses traveled 80 miles a day, each team would draw three loads a day, or 60 loads in all, and it would consequently require 500 days to draw in the wheat. 5th. I think if the 40 horses plowed 40 acres a day they would be doing well, and would finish plowing the field in 900 days, or if they kept at it through rain and shine, Sundays and week-days, they would get the field ready for harrowing and sowing in a little less than two years and a half. 6th. I think the Bulletin man should try again.

Clearing Timber Land.

Several of our readers who have asked for information on clearing up timber land and utilizing the timber are referred to this article for replies to their inquiries. The opening up of the vast Western prairies to settlement by means of the various railroads which penetrate them in every direction for hundreds of miles, has to a large extent drawn away attention from the still unsettled timber lands. But, after all, it is a question whether or not the settler on a clear open prairie, without a tree or bush in view, has not really a harder work before him to make a comfortable homestead than the settler in the dense forest. A gentleman well known as an agricultural writer of repute, and as possessing in no small degree good judgment and common-sense (the Hon. Geo. Geddes), said recently that if he were a younger man he could desire no more profitable business than to take a thousand acres of Michigan timber land, clear it, and after raising a crop of wheat, seed it to grass and clover and raise sheep and wool. The labor or expense involved in the clearing did not seem to deter him from expressing this favorable view of the operation. At any rate, it is quite certain that many readers of the *American Agriculturist* are engaged in this business, notwithstanding so many have chosen to make themselves homes on the prairies.

There are two main things to be considered in clearing up timber land. One is to level the timber in the most economical manner, and the other to make the most out of it when it is felled. It is a very common plan to let the

if saw-logs are to be made, or to where they are to be worked up into rails or staves. The method described is shown by our artist in fig. 1.

If a saw-mill is handy, the most profitable way of disposing of timber is undoubtedly to

readily split when driven. In splitting rails, if the log is very large, say over three feet, it will be best to split it into slabs of the thickness of a rail; if smaller, it may be split through the heart first, and then each half into four or more



Fig. 1.—FELLING TIMBER.

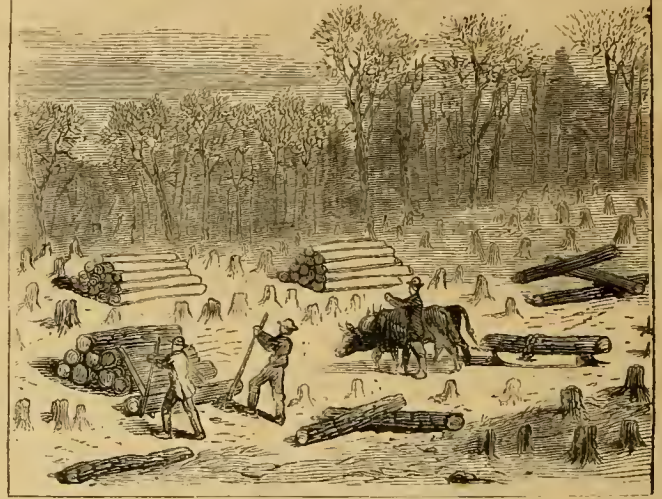


Fig. 2.—LOGGING AND BURNING.

trees fall in just the direction they may happen to go. They are cut without judgment, and allowed to fall on other timber already cut, or often into the standing timber. This entails more than double work. By throwing the trees so that their tops form a long row through the

sell the logs or have them sawed into lumber. In cutting logs, 16 feet is the most desirable length. There is less waste in using lumber of that length. One and a half length makes 24 feet a very common height and width for buildings and the proper length for a fence-board,

rails, as shown in fig. 3. Staves are very salable, and are easily handled, and if properly piled up, and the top of the piles covered with the waste or faulty staves, they will keep sound for many years if there is not a present market for them. Staves are split with an iron instru-



Fig. 3.—SPLITTING RAILS.



Fig. 4.—SAWING LOGS AND MAKING SHINGLES.

clearing, and as they fall lopping the limbs and tops from the body, and cutting that into logs of proper size for the purpose for which they are intended, whether for saw-logs, rail-cuts, or staves, two thirds of the labor of the common plan is saved. By cutting a tree low down on one side more than half through the stump, and cutting eight inches or a foot higher on the other side, it will always fall towards the side of the lower cut unless it leans very much the other way, when by cutting in the same manner at right angles to the direction in which it leans it may be thrown on either side that may be desired. A leaning tree will rarely fall "across the cut" if the side of the stump toward which the tree leans is chopped away before the other side is cut through. Valuable timber that leans, and is liable to split before it is cut off, should be cut completely through at the heart before the sides are cut through. When timber is thus thrown in "winrows," there is no piling or picking up brush to do, and the oxen can get in amongst the logs and haul them to the log-heaps if they are to be burned, or to the skids

and one and a quarter length makes 20 feet, another usual size and height for stables. Rail-cuts should be made 11 feet long, and logs for fence-posts 7 or 8 feet long. Posts should be sawed 6 in. x 6 in. square at the butt, and 6 in. x 3 in. at the top. This size saves timber, and gives the posts, on account of the enlarged butt, a firm hold in the post-hole. In sawing logs, when the saw pinches, a thin wedge should be driven into the top of the saw-cut, which opens it and frees the saw. Two or three of these

ment called a frow, which is shown in fig. 4. If timber can not be used in any other manner, it would be better to burn it and save the ashes for making potash—directions for which were given in the *Agriculturist* for September, 1872.

How to Make a Scow.

A "Subscriber," whose farm is divided by a stream which is sometimes too deep to ford, asks how he can build a scow large enough to ferry a team or a loaded wagon across. There are many river-bottom farmers situated in circumstances similar to those of our correspondent who would find it very convenient to possess such a scow as we here describe.



Fig. 1.—SCOW, BOTTOM UP.

wedges should always be on hand; they should be made of any hard wood, and should be a little bulging at the sides up the center, and if the top of the wedge is beveled it will not

The size necessary to carry a loaded wagon and team should be at least 20 feet long by 10 feet wide, and 15 or 16 inches deep. Three white-pine or hemlock planks, two inches thick and twelve

inches wide, should be procured. One of these will make each side, and one is placed in the center. The ends are cut slanting, as shown in figure 1. The bottom is first put on. This consists of two-inch plank, which are spiked crosswise of the scow. The edges should be jointed a sixteenth of an inch out of square, so that they will touch on the inside and be open at

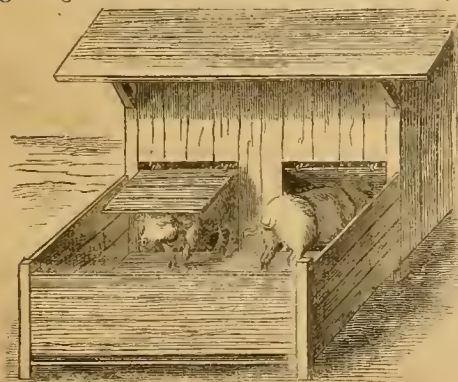


Fig. 2.—THE SCOW COMPLETED

least an eighth of an inch on the outside. All the joints should be made in this manner, and afterwards caulked tightly with oakum and coated with pitch. Then the end planks are fitted, and finally the floor. The floor is also laid crosswise, and must be jointed and caulked the same as the bottom. A hole should be made at one side of the floor, into which a pump may be put occasionally to remove any water which may leak in. At the sides of the floor or deck, scantlings four inches square should be spiked, and on each end of the scow a broad plank should be hinged to serve as a bridge to enable a wagon to be drawn on or off (see fig. 2). Four stout cleats should be bolted to these bridge planks to strengthen them. Such a scow as is here described would sustain a load of over eight tons, including its own weight, or over six tons in addition to it. It should be securely fastened to the landing-place when a team is driven on or off, lest when the wagon-wheels strike the bridge the scow should be forced off the shore and an accident happen.

Self-closing Door for Pig-Pen.

A warm dry pen is necessary for the health and comfort of a pig. Cold and damp induce more diseases than they are charged with. Neither the winter's snow nor the spring nor summer rains should be allowed to beat into the pen. But the difficulty is to have a door that will shut of itself and can be opened by the animals whenever they desire. We give an engraving of a door of this kind that can usefully



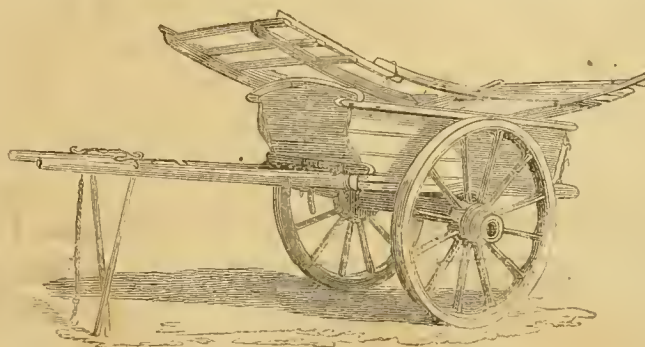
SELF-CLOSING PEN-DOORS.

be applied to any pen, at least any to which a door can be affixed at all. It is hung on hooks and staples to the lintel of the doorway, and swinging either way allows the inmates of the pen to go out or in, as they please, closing after them. If the door is intended to fit closely, leather strips two inches wide should be nailed

around the frame of the doorway, and as the door closes it presses tightly against these strips.

A Farm-Cart.

It is a question whether wagons or carts are the most desirable vehicles on a farm. Each has its advocates, and each has many advantages over the other. Without recording our own preference, we give an engraving of a cart very widely used in England, that is light, strong, handy, and for those who desire to use one would be found convenient in many ways. It is furnished with a hay or straw rack, and in the hay or harvest field would unquestionably have many advantages over a wagon. In this respect we have found by experience that two carts and two horses are much handier than one wagon and the same two horses. One driver only is needed, who takes his loaded cart to the



AN ENGLISH FARM-CART.

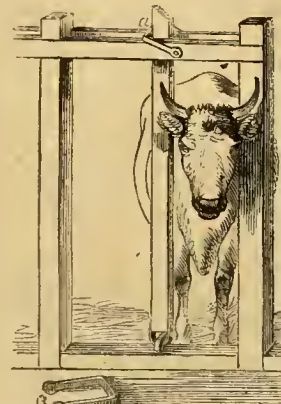
barn, unloads, and returns for the other one, which is by that time ready loaded for him. In turning around in a barn-yard and in hauling manure or earth and the like, carts are thought preferable to wagons by many farmers.

HOVEN IN CATTLE.—The article in the January *Agriculturist* headed as above, with an illustration representing a hoven cow, requires a few words of explanation, lest a mistake should occur in treating a case in the method there described. The picture represents the exact method of proceeding. The distended rumen appears on the left side of the animal, and the operator stands on the right side. The wording of the article might lead some to suppose that the contrary was meant, which was not the intention. This should be carefully noted. The operation is not one to be carelessly made, and it is only when an animal's life can be saved by no other means that we recommend it, except to a farmer who thoroughly understands how it should be done.

Catch for Stanchions.

C. B., Calto, Cal., sends a description of a method of fastening stanchions, which he says was in use in his father's stables in Ireland when he was a boy, and was never known to be out of order. The stanchion was made of strong 2x3 timber, with an iron band riveted on the bottom, by which it swung back and forth on a strong iron staple driven into the floor beam.

The top of the stanchion, shown in the engraving below, was sloped so that when it was pulled up to the cows' necks it lifted the iron catch (a), which immediately dropped again when the stanchion was in place and held it quite securely. When the catch was lifted, the stanchion opened by its own weight and released the animal. In the engraving the artist shows the catch separately, that its form may be properly seen. It is made of light bar-iron.

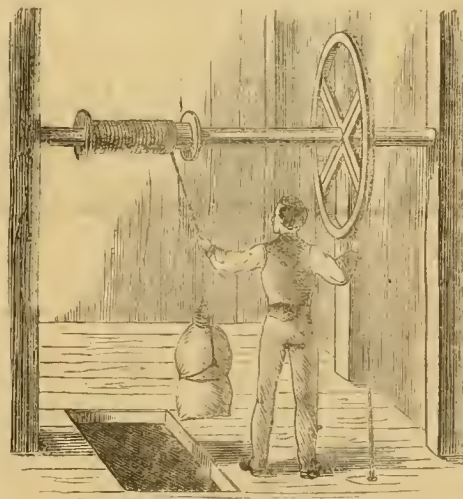


FASTENING STANCHIONS.

A Hoisting Wheel.

No barn, granary, or slaughtering-shed is complete without some arrangement for hoisting. We give on this page a figure of a very simple and useful one, which can be put together very easily without employing a carpenter, and for which nothing is required more than some boards, a wooden shaft, and some wrought nails. The shaft should be a piece of spruce or yellow pine, from six inches to a foot in diameter, according to the size of the hoist desired. A six-inch shaft would be large enough under any

ordinary circumstances, and with a six-foot wheel a man of 150 pounds weight could hoist 600 pounds as easily as he could 50 pounds over a single pulley. The gain in power would be twelve times. The shaft should be cut such a length as will fit into the bearings intended for it. These may be posts or a frame set up purposely, or they may be laid upon the purlin plates of the barn, allowing the shaft to extend across the floor. There should be an iron gud-



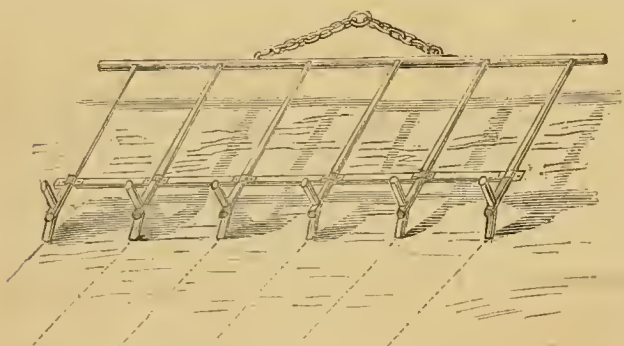
A HOME-MADE HOIST-WHEEL.

geon driven into each end, or gudgeons may be worked on the ends of the shaft itself. The place on the shaft where the wheel is to be built, which may be at any part of it most con-

venient, should be worked square. The wheel may be built up of yellow pine strips, one inch and a half thick, for the arms, and hemlock or white-pine boards one inch thick for the segments. Four strips are nailed together around the shaft. These form the arms of the wheel. They should be cut just as long as the diameter of the wheel is intended to be. Then a nail should be driven into the barn-floor or the floor of the work-shop, and with a cord three feet long and a piece of chalk a circle six feet in diameter should be drawn on the floor. The boards to form the segments of the wheel may be marked out in this manner and fitted together exactly. They should then be nailed on to the arms on one side with wrought nails and clinched. The spaces between the arms should then be filled up with inch-and-a-half boards cut to fit, which should be nailed to the segments in such a way as to break the joints, if there are any, with wrought nails as before. Then the segments for the other side may be nailed on in the same way as before directed, and carriage-bolts may be put through at each arm to make the whole secure. The outer circumference of the segments should be made to project two inches beyond the ends of the arms, and the edges of the boards which fill the spaces between them, so as to leave a groove all round the wheel in which the draft-rope works. A rope an inch and a quarter in diameter will be large enough for any purpose, and will be found easier for the hands than a smaller one. If the wheel is desired to be light, or good yellow pine is used for the segments, no filling between the arms need be used, but, instead, carriage-bolts may be passed through the segments two inches from their outer circumference for the rope to work on. The rope will not slip on them very easily, but of course there will not be nearly so much hold as when the space is filled up entirely. The boards and the ends of the arms should be dressed off smoothly, so as to prevent wearing the rope. If the rope be found to slip in hoisting very heavy weights requiring two or three men, some chalk should be rubbed upon it, which will prevent the slipping.

A Simple Corn-Marker.

R. N. G., Ballston Spa, N. Y., sends us a drawing and description of a corn-marker, which is



IMPROVED CORN-MARKER.

not patented. A round pole of white pine or other light tough wood 18 feet long is procured. In this are cut six grooves a quarter of an inch deep, and three feet four and a half inches apart. Six strips are then made, an inch and a quarter thick and five feet long, and two and a quarter inches wide at the upper end and four inches at the lower. At the upper ends of the strips loops of light hoop-iron are nailed and made to embrace the grooved part of the pole,

or strips of stout leather may be used in place of the hoop-iron. These strips are fastened together by another cross-strip three inches wide, one inch thick, and of such a length as to bring the center of the strips three feet four and a half inches apart. Two stout pins, 10 inches long, are fixed to each end of the strips at an angle, as shown in the engraving. This marker may be used by two men, or may be drawn by a horse, and lays out about 4,000 hills to the acre, so that by counting the rows in the field each way, multiplying together, and dividing the sum by 4,000, the exact number of acres in the field may be ascertained. When the marker is drawn to the end of the field, it is turned over on the other side, and lifted so that the end tooth is in the last row made, which is the guide for the next rows. If the first row has been laid out perfectly straight the whole field will be accurately checked.

Improved Stock in Texas.

I observe many notices of shipments of fine stock of various kinds (more particularly hogs) to the South, and am glad to see such items, as it plainly shows a fact that has been considered doubtful—i. e., that fine stock of all kinds will live, thrive, and *pay* in the extreme South.

The idea that they would not succeed has so often been advanced and supported (by those who did not know about such things), that many were afraid to bring in valuable animals. Such a notion is now a thing of the past, however, and it is wonderful and gratifying to notice with what a vim our people are taking hold of good stock, once introduced, and with what successes they are encouraged in it.

As an instance of what can and will be done, I will mention a few items coming under my observation in Collin Co., Texas. The farmers were first attracted to fine hogs, as they make quickest returns for money invested, and would not be so expensive in bringing out.

The Chester Whites were introduced in '69, and being finer than anything before seen, sold well, and paid both buyer and seller. They proved too tender for our rough farm usage, and falling into disfavor with many, were superseded by the Berkshires. These succeeded in every way, and were disseminated and crossed throughout the country. But at our last fair some Poland-China or Magie pigs were shown, and immediately the country was loud with praises of this breed. They fulfilled so many of the requisites of the hog that was wanted, that they were hailed as the coming hog. There are now nine very fine ones in the county, and they increase in favor. Of course we have the strong advocates of the other breeds, and we now have good specimens of all the prominent breeds of hogs, as well as grades and crosses of all kinds, and can show, I think, as

nice stock of this kind as can be found in the entire South.

In sheep a lamentable lack of interest is evident, and natives are few, and fine ones wanting.

A late introduction of a fine lot of Shorthorns and grades from the blue-grass region of Kentucky has done well, and is paying the owner large profits, but it is only a shadow of what is to do, and will be done in a few years. Our advantages for cattle, when pastures come more

into vogue, can not be overestimated, and in a few years the raising of *fine* cattle will assume proportions consistent with those of our former raising of the wild longhorn native.

Many good stallions are now standing in the county, some of them thorough-bred and really fine, principally from Kentucky.

But in draft stock our *forte* is mules, and I may say that finer mules are seldom seen anywhere than are raised here. It has become quite a business of late years, and we have some excellent breeders and very fine jacks. Many mules are driven from here every year, and, selling as they do at first-rate paying prices, this branch of stock suffers no decline, nor will it under these circumstances.

We have even the busy little Italian bee fully at home, and working his many hours a day for us. They are as yet only in one apiary, but our people are so full of the idea of securing the best, that I have no doubt they will soon be scattered through the county. T. B. L.

Collin Co., Texas.

Tim Bunker on Dog-Laws.

"Whose dorg did it?" asked Jake Frink excitedly as he looked over the fence where Seth Twiggs was pulling carrots and smoking—or smoking and pulling carrots, just as you happen to look at the main business of life. The cloud was very thick this morning, for Seth was in trouble, and there was a good deal more dog than carrot in his meditations. His favorite Cotswold ram, on which he had been bragging for a month, had been bitten the week before, and last night died of his wounds—neither sheep nor mutton, but a dead carcass unfit for human use.

"Guess it was yourn," answered Seth, "but I can't prove it, for I didn't see him bite the sheep. But I saw him in the same pasture, the same afternoon, with his tongue out, as ef he had been chasing suthin', and an hour afterwards I found the ram badly bitten."

"It couldn't be my dorg, for he's a setter, and I never knew him to hunt anything but birds. He is the greatest setter you ever see."

"Wal, mebbe so," said Seth with a long puff. "But when I seed him that afternoon he was fur enough from settin'. His tail was straight as a string, and his tongue was out a foot long, as ef he was chasing a fox, and I should have smelt a fox ef I hadn't found the ram bleeding to death. But I can't prove anything, Jake. I didn't see him bite the sheep."

"There ain't a doubt that he bit the sheep," said Uncle Jotham Sparrowgrass, "for he killed two of mine last year in one night. I saw him eating the carcass."

"It is a hard case," said Parson Spooner, who loved mutton, and liked to see his parishioners introducing better stock into Hookertown. "It seems to be almost impossible to raise sheep in this neighborhood."

"Well, what are you going to do about it?" asked Deacon Smith. "Your buck is dead, and fifty dollars have gone up."

"I thought they had a dog-law in Connecticut, and that we could get pay for sheep that the dogs killed?" Seth remarked inquiringly.

"You can get pay of the owner of the dog," the Deacon replied, "if you can prove the damage, and if the owner is a responsible man. The law will take his property to make your loss good."

"And if you can't prove it, what then?" asked Seth.

"Then you have to come upon the town for damages," said Deacon Smith. "The law taxes all the dogs in town, and keeps the avails for a dog fund. Then, at the close of the year, if the dog fund is large enough to pay for all the losses of sheep by dogs, you can get your pay. If it is not, then the fund is divided *pro rata* among all the losers, and you get your share."

"Which means," said Seth, "that I get my pay if the town can make somebody else pay it, and if not, I whistle for it. The town by its neglect lets loose these hungry curs on my sheep, and won't pay the damage, which ain't square. If the town neglect a bridge, and my horse breaks his leg, I get my pay, and all the property in town is pledged for it. Now, it stands to reason that a blood-thirsty dog is more dangerous than a bridge, and a sheep is just as good as a horse, and some better."

"I agree," said the Deacon, "with you that the law is not equal, but it is all the protection we who are sheep-owners have. The law ought to be changed so as to suppress dogs altogether, or to confine the privilege of keeping them to men who are able to pay for the injuries they inflict upon the farming community. For my part, I would make the keeping of a dog a penitentiary offense."

"I'd jine you there," said Seth, pouring out a cloud of smoke thick enough to suffocate all the dogs in Hookertown.

"Class legislation," exclaimed Jake Frink. "You'd like to have the law fixed so that 'ristocrats and rich people can keep their Newfoundland dogs, and rat and tan terriers, and sikh like, and shet down on us poor fellers who want to keep hunters and watch-dogs."

"That's jest so," said George Washington Tucker, who had got the news of the death of the big Cotswold buck that had been the envy of Hookertown for a month. "Ye see, we all used to keep jest as many dogs as we had a mind to, and could hunt rabbits and skunks seven days in a week if we wanted to, and no questions asked. There was no end hardly to the game a poor feller could pick up along in the fall of the year. He could e'en a'most git his livin' with a smart dorg. Yes, sir-ee, when old Pomp was alive, I've had fifty rabbit-skins, twenty muskrat-skins, a dozen skunk-skins, besides coons and woodchucks, on the back side of my house many a time. But sence they begun to tax dogs, I can't afford to keep one, and hunting don't pay without a good dorg. Rich folks can keep their blooded dogs with big names, but poor folks must go without. They keep crowdin' us into a narrow corner every year, and I tell you somethin' will have to break by and by, see ef it don't."

"If they would only crowd you," Seth replied, "so hard as to break every dog's neck, it would be the best thing that could happen to you and to the community."

"That's so," said Deacon Smith. "Hunting in a civilized community does not pay. It tends to make idlers and vagabonds of the hunters, wastes time, destroys crops, and is the most expensive way of getting one's bread. You can raise turkeys and chickens at half the cost of quail and snipe, and lamb and mutton can be had much cheaper than coon and skunk, to say nothing of the difference in the flavor."

"That's jest the way you 'ristocrats allers talk," said Tucker. "But I'd like to know ef this ain't a free country, and ef a man takes a notion to prefer coon and rabbit to lamb and chicken, who has any right to quarrel with him? It may be a very nasty taste, but as long as

you don't have to eat 'em, whose business is it? Ain't it my constitutionel privilege to eat what I have a mind to, and ef I want dogs to ketch game, who shall hinder me? No sumpterry laws in this country, ef you please, to tell me what I shall eat and drink!"

"That's jest the p'int," said Seth, taking the stub-pipe from his mouth. "Ye see, I take a notion to lamb and mutton, and the owners of worthless curs virtually say I shan't have it, but must put up with skunk and coon meat, or suthin' else, that will allow them to keep dogs. It is a poor rule that won't work both ways."

But George Washington Tucker did not see it, and the class of men to which he belongs can't be made to see that the public good requires that their right to keep dogs and eat coon and skunk should be made to square with Deacon Smith's right to keep sheep, and eat lamb and mutton and other Christian meats. So politicians who make our laws, in lively fear of votes, legislate on the half-and-half principle, laying a light tax on dogs, which prevents nobody from keeping them, and half-paying Seth Twiggs and other sheep-owners for their losses. These losses are enormous throughout the whole country every year, amounting to many millions of dollars. In many parts of the country they are entirely prohibitory. No man attempts to keep sheep, because it is demonstrated that the losses by dogs are greater than the profits. No man wants to buy Cotswold or other thorough-bred sheep, at a cost of from \$30 to \$50 each, and run the risk of having them killed, and getting five dollars a head for them from the town treasury. This state of things will last just as long as farmers suffer it. The remedy lies in suitable legislation, and we shall have that just as soon as the politicians are put in wholesome fear of farmers' votes. What is wanted is a law that will tax cheap irresponsible curs out of existence, and pay the sheep-breeders' losses from dogs out of the town treasury, just as other losses are paid which grow out of the negligence of the town authorities. If my horse or ox is injured from a bad road or an unsafe bridge, I can recover for my loss. But if my sheep are killed by dogs, I can only get partial redress. This could not properly be called class legislation, for every man, woman, and child is interested in cheap mutton and cheap woolen goods. We all want these, and can have them if sheep husbandry can be put on a level with other industries. Our State Boards of Agriculture, County and State Agricultural Societies, and Farmers' Clubs should take hold of this matter, and give the legislatures no rest until they secure such laws as will encourage sheep husbandry.

Yours to command, TIMOTHY BUNKER, ESQ.
Hookertown, Ct., Jan. 8th, 1873.

The Farmer's Savings-Bank.

In the December number of the *American Agriculturist*, we told our young readers how we managed what we call the farmer's savings-bank—or a heap of manure that we aim to keep fermenting during the winter. Some people think this can not be done. We know that nothing is easier. During the coldest weather this winter our heap of manure that the "boys" made, and on which we keep depositing manure every day from the stables, pig-pens, etc., kept warm enough to melt more or less of the snow on top. We think this is much better than letting the manure lie in heaps about the premises, to be frozen in cold weather and to wash away

in wet weather. Freezing, of course, does not hurt the manure. It does not hurt money, you know, to keep it lying idle in the house, but it is much better to put it in the savings-bank, where it draws interest. And it is much better to put manure in such a heap as we have described, because it becomes more valuable.

A great many very sensible farmers think that well-potted manure is no better than fresh, unfermented manure. If the manure has been badly managed, if the water from the eaves of the buildings has been allowed to wash out its soluble-matter, they are right. But if the heap is properly managed, as we have described, we think these good, sensible farmers are mistaken. You need not tell them that we say so. There was a time when we were inclined to think as they do; but this was many years ago, when we had just commenced to study chemistry, and thought that the ammonia escaped. Now we know that manure *can* be fermented until the straw and stalks are decomposed, without any loss of ammonia worth thinking about.

But why is manure better for being fermented? Because plants will not take it up until it is decomposed. If it is applied in the fresh state to the soil, it must decompose in the soil before it is of any use to the plants. This takes a long time, especially in clayey land. The manure acts quicker for being fermented before it is applied to the land. But this is not the only advantage. If you apply manure to the land and it is not taken up by the plants the first year, the ammonia and phosphoric acid and potash enter into combination with certain ingredients in the soil and become nearly insoluble; and then it takes a long time before we can get back these valuable substances out of the land. The land will pay us interest, but keeps pretty tight hold of the principal. Better put the manure, therefore, as fast as it is made, into your own savings-bank in the barn-yard.

Pernicious Teaching in Horseshoeing.

Doubtless there is a great amount of cruelty unintentionally committed in shoeing horses. The prevention of this cruelty, with its consequent suffering to the poor crippled beasts, and its pecuniary loss to their owners, most assuredly comes within the jurisdiction of a Society for the Prevention of Cruelty to Animals. But when such a Society, as that at Boston has recently done, publishes or distributes a work upon *practical* horseshoeing, so called, in which farriers are recommended to *fuse* the shoes to the horse's feet, it is, to say the least, injudicious and to be regretted. This work is an essay by an English veterinary surgeon, and contains the following words illustrative of his method of fitting the shoe by clapping it on to the hoof red-hot, and, "fusing the horn with which it comes in contact, imprinting itself like a seal in melted wax, and in this way the two surfaces of foot and shoe exactly coincide." This book, we understand, has been distributed by the Boston Society aforesaid amongst the New England farriers and blacksmiths. *Let* they might be misled in spite of their better judgment to adopt this utterly destructive mode of fitting shoes, we hasten to protest against it as eminently cruel and destructive to the animal. The hoof of a horse is totally different from a piece of wax. All but the outer crust is highly sensitive. The insensible outer crust is a living and elastic substance, comparatively thin, and connected closely with the sensitive interior. If the elasticity of the crust and its life is de-



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IN THE ICE ON LAKE CHAMPLAIN.—Drawn and Engraved for the American Agriculturist.

stroyed, it no longer serves its purpose. The application of a red-hot shoe to this crust has exactly this effect. The oily, elastic, living substance becomes charred, contracted, dry, dead matter. Its presence is a source of irritation to the neighboring living matter, and its changed condition renders it a source of annoyance, pain, and injury to the animal. The hoof is rendered brittle, its expansion is prevented, permanent contraction is effected, and if the system be persevered in, the horse will soon become entirely useless. If the skin of the palm of the hand be seared by the application of a hot iron, an idea of the effect of applying red-hot shoes to the horses' feet may be partly realized. It is absolutely unnecessary as well. A good workman will make a good shoe, and will fit it evenly and neatly with a proper bearing, by the use of tools alone, and without heating it. A poor workman may undoubtedly find it easier to fit a hot shoe and burn (fuse) the crust of the hoof, but we would caution all owners of horses not to intrust their animals to such workmen, and advise the Boston Society to withdraw its worse than useless publication.

Accidents on the Ice.

As the power of the sun increases with the advent of spring, the ice upon the lakes and rivers weakens, and traveling upon it becomes dangerous. In the northern portions of the country it is not an uncommon occurrence at this season of the year for horses to be lost in rivers and lakes through air-holes or weak spots in the ice. When such an accident occurs, presence of mind and deliberation, together with a knowledge of "how to do it," generally enable the driver to extricate his horse or team. Under such circumstances, the animal by the exercise of his instinct knows whether his attendant is self-possessed or not, and if he is taken by the head, in most cases surrenders himself at once quietly to the treatment undertaken until encouraged to help himself, when he will do so successfully. The first thing to do is to take hold of the horse's head, while another man cuts loose the sleigh and draws that out of the way. Then let a slip-knot be made on the end of one of the reins and passed over the horse's head, and drawn tight around his

neck and held firmly. Then a buffalo robe or blanket being spread on the ice, the second man should pass the end of the other rein or a rope around the animal's knees, and by this means pull them up on to the ice. Then both men pulling together, aided by the efforts of the horse, will land the animal upon the solid ice. There should be no hurry, but yet everything should be done promptly and quickly. "The most haste the least speed" is generally true in these cases, and to know exactly what to do first and next is the chief thing. When a rope is drawn tightly around an animal's throat, so as to interfere somewhat with its breathing, its lungs become filled with air, and the buoyancy of its body becomes increased. Our artist in the above engraving has shown the method of procedure here described. In some cases we have known a horse left somewhat to himself in driving to avoid unsound places and cracks on the ice which otherwise his driver would have forced him into. It is not unwise to permit a steady horse to have a good deal of his own way when on the ice, and also to drive slowly when in places where there may be danger.

The Canada Victor Tomato.

BY JAS. J. H. GREGORY, MARBLEHEAD, MASS.

About a year ago I received what I considered an extravagant description of a new tomato,

the exhausting labors of the winter and spring. On my return, one of my foremen was very emphatic in his praises of one kind of tomato that had ripened earlier than any of the twenty-eight varieties on my grounds. On going to the

Two New Bedding Plants.

It is assumed that our readers understand that by bedding plants we refer to those used in masses to produce effects of color. The plants



VARIEGATED WOOLLY GRAPHALUM.



VARIEGATED COLEUS "CHAMELEON."

named Canada Victor, the control of which was offered to me for a thousand dollars. As I have made it a rule never to introduce a new vegetable to the public before trying it in my experimental garden, which is specially set aside for this purpose, I declined to purchase, but suggested that being always on the lookout

spot, I found it was the new tomato from Canada, and saw at a glance that it was a valuable acquisition, it being not only remarkably early, but of a large size, very symmetrical in shape, solid, ripening thoroughly around the stem, and a first-rate cropper. I learned that a

market-gardener, largely engaged in the business, came from a distant city during the summer with the special purpose of examining my varieties of tomatoes as they grew, that he might thus be enabled to select the best for his own planting. After examining with care, and studying the characteristics of twenty-eight varieties scattered over three square miles of ground, he emphatically chose the Canada Victor. Experience has taught, that the man who declares he has the earliest of all tomatoes, is treading on very dangerous ground; I can personally affirm that it was the earliest of all my varieties last season, and the gentleman who sent it writes that for three seasons he has tried it with other varieties, and finds

that it excels all in earliness, by from six to ten days. [Mr. G. is right as to the suspicions with which statements about early tomatoes are received. Much depends upon the treatment of the young plants. Mr. G. has had a long experience and is always careful in his assertions.—Ed.]

employed are those that continue long in flower, or those the foliage of which is sufficiently striking in color to produce a pleasing effect. The bedding system has been practiced in England to an extent that foreshadowed the neglect of all plants not adapted to this use. This general devotion to bedding out has caused a reaction, and certain English horticultural writers denounce it altogether. We are, in this country, safe in advocating the bedding system with what



THE HURLBUTT STRIPE.—(See next page.)

for improved vegetables I shall be happy to test it by the side of my other sorts. A package of the seed was sent me, and I planted it in the cold-frame the same day with my other sorts. Just after the plants were set out, I took a short excursion to Europe for a breathing spell after



CANADA VICTOR TOMATO.

are called "foliage plants." The intense heats of our summers preclude the general use of flowering plants for producing bedding effects, and we actually need those with brightly colored foliage. In mid-summer our gardens would present a sorry sight were it not that the heat which prevents us from having flowers is just what is needed for the development of the beautiful leaves of the bedding plants. But even among these we must make a choice. While the

now common *Coleus Verschaffeltii*—the Velvet Coleus—fairly revels in our hot suns, the beautifully variegated geraniums which are so largely used in England, are withered to a crisp. We have no doubt that we shall, by experimenting, hit upon a set of plants with colored foliage that will allow us, with our brilliant sun, to produce effects of color equal if not superior to anything that England or the Continent can show. Believing this, we gladly welcome any new plant that promises to be useful in this way. By repeated trials, we shall find out those things suited to our somewhat peculiar climate, but we must take all novelties on trial.

We have received two plants from Mr. H. E. Chitty, Superintendent of the Bellevue Nursery, Paterson, N. J.—a wide-awake establishment—which we shall submit to trial. One is the Coleus "Chameleon." As the plant comes from the greenhouse, we can say that we never saw a Coleus that equaled it for beauty, but it has yet to be submitted to the test of outdoor cultivation. We are thus cautious of speaking about a new Coleus, for we well recollect how many named sorts of the Golden Coleus all melted into one under our hot summers. The plant as grown in the greenhouse is truly beautiful. The edge of the leaf is bordered with bright yellow, its ground work is carmine, and marked and splashed with dark maroon in such a way that no two leaves are alike. While we are aware

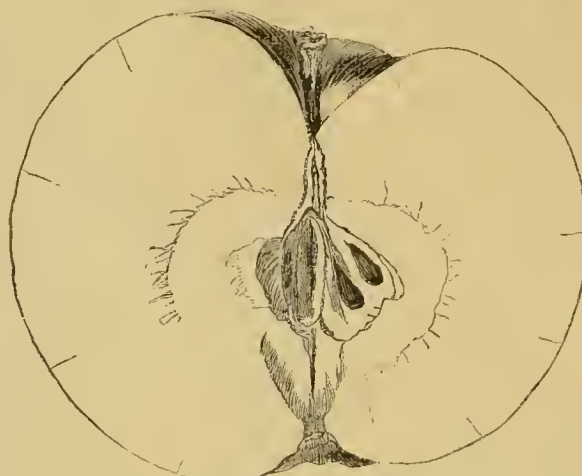
of the difficulty of reproducing colored leaves in an engraving which can show only different shades of black and white, we have been tempted to give an illustration of the Chameleon. The other plant referred to is a variegated *Gnaphalium latatum*. The ordinary form of this plant has long been grown in gardens and in hanging-baskets, on account of its silvery white foliage. We give an account of this plant furnished by Mr. Chitty:

"This plant originated in the garden of M. Edm. de Ghellinck de Walle, who is the honorable President of the Royal Horticultural Society of Ghent, Belgium, where the plant was fully tested for two seasons (viz., 1870 and 1871), and greatly admired by all who saw it. When perfectly satisfied that the variegation of the plant was permanent, the above-named gentleman placed the entire stock into the hands of M. Jean Verschaffelt, of Ghent, by whom it was distributed last spring. The leaves of this plant partake somewhat of the downy, silvery gray appearance of the type, but are broadly margined with golden yellow, and in some the leaves are striped with yellow. The appearance of the plant is good, its habit being much more compact than the old form, which we have no doubt it will entirely supersede, being so much handsomer in every respect. We had several plants growing outside in our nursery last summer, where they withstood the scorching sun, and took very kindly to their new home."

The Hurlbutt Apple.

The apple known as the Hurlbutt Stripe about Winsted, Ct., where it originated, enjoys an enviable reputation as an early winter variety. It is in Dr. Warder's catalogue, but not described. It originated upon the farm of Gen. Leonard Hurlbutt, about two miles from the

village, and the parent tree is still standing. The trees are very hardy, grow rapidly, and in good soil to a large size. They are well-proportioned, and bear good crops every year, but not always so large as this year. The fruit is of medium size, uniform, fair, beautiful, round, nearly regular, a little flattened, though many specimens are quite round; surface smooth, striped red on yellow, many specimens a bright deep red, much russet about the cavity, and russet dots all over. Basin shallow, small; eye small and closed. Cavity deep, acute; stem short to medium. Core round, flattened or wide, regular, open; seeds numerous, short, plump; flesh white, tender, fine-grained, juicy; flavor very mild sub-acid, aromatic, rich; quali-



HURLBUTT STRIPE—SECTION.

ty best; use table; season from October to February. To those who are partial to a mild flavor, this apple leaves nothing to be desired.

The variety is a general favorite in the neighborhood, and is limited to a few towns. It has been in cultivation about thirty years. It is not considered a late keeper, though it sometimes, under favorable circumstances, lasts until spring. The quality is so good, and the apple so handsome for the dessert, that it ought to be more generally cultivated.

Localities for Market-Farming.

BY FRANCIS BRILL.

Since my work on "Farm-Gardening and Seed-Growing" has been published, I have received several letters asking my opinion as to the best location for conducting these branches of agricultural industry. These inquiries have come mainly from the northern portion of the United States, and one from Prince Edward's Island, B. N. A.—all of which have been duly answered by mail. As there may be other readers of my book who may desire the same information, I propose to say a few words through the *Agriculturist*.

"Farm-gardening," or the growing of the coarser vegetables for market, may be carried on profitably at a distance of 100 miles from the place of sale, provided there are facilities for cheap transportation of produce to market, and the same advantage in procuring manure and fertilizers from the city.

The most desirable locality is one having direct communication by water with the place where the produce is intended to be sold, and of course, as a rule, the less the distance the less the freights. But one great point is to have the soil suited to the business, a matter which is fully discussed in the aforesaid work. To

grow produce for New York City, perhaps there is no location better than Long Island. For many years farmers at the "West End" have grown vegetables for that market, and at the "East End," especially on the northern branch, 80 to 100 miles from the city, quantities of vegetables are grown and transported to New York and also to Boston, by rail and water, and the business is on the increase. In the vicinity of Mattituck, 82 miles from New York City, large quantities of cauliflower are grown, and the past season (fall of 1872) the shipments for six weeks averaged 150 barrels a day, and the season was rather unfavorable. The soil and climate at the east end of Long Island are unsurpassed for the growing of either vegetables or seeds.

Seed-growing may be conducted profitably in the Middle and Northern States, though the seeds of some vegetables—as, for instance, Egg-plant, Okra, etc., which require warm weather and a long season to mature them—can not be successfully grown north of New York City. Beyond a doubt, localities near the sea-coast, where the air is moist and cool, and where late spring and early fall frosts are not general, are the best for growing seeds.

Mattituck, L. I.

Notes from the Pines.

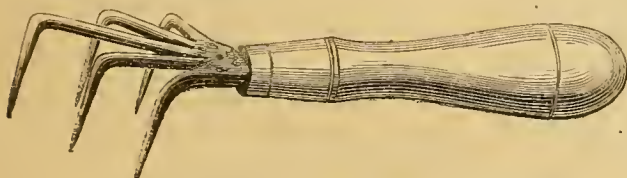
THE ICY SUNDAY.—What a morning it was! Every branch and twig, every dead weed that projected above the snow, was incased in ice. Those alum abominations that are called "crystallized grasses" were put to shame by the frost-work. I do not remember having seen anything like it, save once in Texas, when there was no snow, but everything had an icy covering. How soon we forget! I thought I should remember the day as "the icy Sunday," just as the oldest inhabitants keep in mind the "cold Friday." Now, only a few weeks after, I have to ask my man which Sunday it was. He was sure to remember it, as he had to clear the road so that people could drive by to church. One of the pines stretches its branches quite across the road, and the load of ice was more than one branch could bear, and down it came with a crash. It was as large as an ordinary tree, and quite obstructed travel. No doubt that those who drove out on that icy Sunday were delighted with the view. Such a glitter, such effects of light when the sun was in certain positions are rarely seen. But did those people think of the poor trees? I was anxious all the day, and feared great damage, but fortunately there were no high winds, and so far as I was concerned the large pine was the only sufferer. But I have noticed that great damage was done to the trees of others. Wherever a branch has been broken, the stump should be sawed off close to the trunk, and the wound covered with some water-proof material. Melted grafting-wax is good, and so is common paint. White paint is too conspicuous, and should have some lamp-black or umber in it to make it nearer the color of the tree. Every fruit-grower should keep a bottle of

SHELLAC VARNISH.—I notice that sufficient directions for making this were given last month in the Household Department. It is very useful, as your correspondent states, to have in the house, but it is almost indispensable in the orchard. It seems to last longer upon the cut surface of a tree than anything else, and it does not show. For this use it should be thicker than is required for varnishing, as thick as

cream, or as thick as will work well with the brush. It is best to make it too thick, and then add alcohol as required. Overhauling one's

IMPLEMENTS is good winter work. It is surprising what a number of "rattle-traps" one will accumulate. It takes a deal of time to try things. People who have never tried it think it must be great fun to be an editor and get new implements for nothing. An editor with a conscience, when he accepts an implement, is bound to give it a fair trial and report the result. This is something that one can not delegate to others, but must do himself. I quite agreed with Walks and Talks when he proposed to give up all his editorial perquisites to any one who would pay his postage bill. The editor gets an implement that if he bought it would cost him five or ten dollars, more or less. The notice, if favorable, is worth to the

dealer a thousand dollars, more or less. So none of us, while ready to try all new things, feel under any obligation, nor do we esteem



EXCELSIOR WEEDING-HOOK.

it as anything very desirable. Among the accumulations of last year I found a number of things to put among the old iron, but there are a few that I would not willingly part with. Last spring I was in the seed-store of R. H. Allen & Co., and after I left, I found that Jos. M. Gleason, Esq., the superintendent of the seed department, had put something into the pocket of my overcoat. I found it was an

EXCELSIOR WEEDING-HOOK.—It is an iron hand, with the slender fingers spread just as one would place them in scratching the surface of the soil. This is a most useful implement for lightening the soil between rows of seedlings, whether in the hot-bed or open ground. It is perfect, and it comes into use in various ways. Mr. G. has my thanks for making me acquainted with this excellent work.

THE SIDNEY SEED-SOWER is another good thing. B. K. Bliss asked me to take one home and try it, and I did it feeling that I was lugging home a useless implement. It is really a convenient thing for those who are not used to sowing seeds by hand, and who have not enough to sow to require a regular sowing-machine. It is, as will be seen by the drawing, a cylinder to hold the seeds, and a spout or gutter at the lower end from which they fall. The supply is

regulated by a small sliding-door, and in the cylinder is placed an inverted cone to prevent clogging. (In the drawing the cylinder is fractured to show the cone within.) By changing the inclination of the delivering spout, the flow is made fast or slow, and an inexperienced hand can soon learn to sow with great regularity. Like all other useful implements, it is exceedingly simple. I notice that in England (the thing is English) they advertise a handle (which I show in the drawing), and say, "No more stooping." If a person can not stoop, he has no business in a garden. I have nothing new to add about

HOUSE PLANTS.—The Double Chinese Primrose and Catalonian Jasmine have been in bloom for over two months, and promise to continue. I have long wanted a

HANGING-BASKET different from the heavy rustic affairs, which, though they are well enough for verandas, are quite too heavy for windows. I received some specimens from Snow & Coolidge, West Sterling, Mass., of which I send a drawing. The pot, while it is of a shape that is not inelegant, holds a sufficient quantity of earth, and is arranged to be suspended by means of chains. It has a saucer attached to receive any water that may drain off. Though the pots are glazed, the makers claim that the glazing is not impervious. This is, however, a matter of little importance, for if the drainage be good the pot may as well be glazed or of metal, while if no drainage is provided, a porous material is necessary. It is no little thing in favor of these pots that they may be used suspended or not, as circumstances may require. The same manufacturers send

excellent samples of ordinary flower-pots, and one of a rustic pattern.

Propagating Stone Fruits.

To answer several inquiries concerning the propagation of the peach, plum, and cherry, we group them together. Seedling stocks are used for the peach and cherry, while those for the plum may also be raised from layers. The stones should have been buried in a dry place in autumn, or preserved in layers of sand in a box exposed to frost. Cherries germinate very early, and the seeds must be sown as soon as the ground can be got ready. Peach and plum stones if they do not crack by the swelling of the seed should be carefully cracked by hand, and the seeds or "meats" sown. Peaches are budded the same year they are sown, while plums and cherries usually require two years to make suitable stocks. The seedlings are taken up in the fall and heeled in, and the next spring are set in nursery rows. Peaches are propagated by budding almost exclusively, at the North at least, though some of the nurserymen at the South graft in the spring the stocks which failed at the previous season's budding. Plums and cherries are usually budded, but they may be

grafted with success provided it be done sufficiently early. The grafting should be done before the buds start, and if before the frost has quite left the ground, the chances of succeeding will be greater. The peach is often worked upon plum stocks, as the roots of the plum are better adapted to heavy, moist soil than those of the peach. "Barry's Fruit Garden" gives instruction in propagating trees of all kinds clearly and in detail.

Inducing Fruit Trees to Bear.

A correspondent at Lebanon, Va., writes as follows: "My friend T. had an apple-tree which bore abundantly, but only every alternate year. He chanced in early spring to lay some heavy poles on some of the lower limbs. This was not its year to bear. The limbs on which the poles rested bloomed and bore abundantly, while the other parts of the tree had neither bloom nor apple. Did the weight on the limbs, by checking the circulation of sap, and consequently the growth of wood, develop fruit-bearing buds? If so, may we not learn a practical lesson from this incident?"

In this country we see but few of what may be called the refinements of horticulture. Trees are for the most part planted and allowed to take their chances. If they survive the struggle for existence, and after many years come into indifferent bearing, the fruit is welcome. If the trees are choked by grass and weeds, and starved by other crops, either the nurseryman is blamed, or it is concluded that "trees don't do as well as they used to." Our correspondent has rightly accounted for the phenomenon, but the "practical lesson" has been learned long ago, and in one form and another has been practiced. The pruning and training of trees to induce fruitfulness is well understood, but the great trouble is that in our rude horticulture it does not pay. Our people have in part learned that in order to grow grapes they must treat their vines properly, and after a while they will find that trees will repay tasteful care and attention.

How to Raise Celery and Cabbage Plants.

BY PETER HENDERSON.

I find that most of the information that I am able to give to your readers is suggested by inquiries of correspondents who write to me to help them out of their difficulties. One of these, from New Hampshire, says that he finds great trouble with his crops of both cabbage and celery on account of the difficulty of raising the plants. His hot-bed-raised cabbage are often severely hurt by frosts after planting out, and his celery seed, which he can not in his section sow sooner in the open ground than the first week in May, does not give him strong enough plants to set out in July. These difficulties suggest a remedy which must be different from our usual practice in the latitude of New York, where in ordinary seasons our ground operations are in full blast the first week in April. This remedy is the use of sashes, not as hot-beds, but only as cold-beds, or, as they are called, cold-frames. These are constructed simply of boards placed parallel with each other six feet apart, or of the length of the sash used, whatever it may be. These beds should be placed in a spot as warm and sheltered as possible. Where the frost is yet in the ground, by placing the sashes on, the spaces under them will soon be thawed out by the sun, particularly if the sashes can be covered up at night.

As soon as the soil is dry enough, it should be thoroughly pulverized, and incorporated with at least three inches of well-rotted stable-manure; in the absence of that, bone-dust may be used, and well mixed through the soil in quantities of about two pounds to each 3 x 6-foot sash. But great care must be taken to have it thoroughly mixed with the soil to a depth of at least four inches. An ounce of cabbage seed would be about sufficient for each three sashes; of celery, one ounce would sow eight sashes. The sowing may be done any time during March; the sooner, however, the better, provided that provision is made to exclude frost from the beds by covering with mats or shutters. The cabbage seed will probably germinate in these cold-frames in about ten days after sowing; the celery in fifteen or twenty. But as the latter germinates very slowly, the weeds of most kinds will germinate before it, and they must be pulled out as soon as they can be got hold of. Nearly one half of all the celery seed sown is lost from want of early attention to weeding the seed-beds. There is no vegetable grown that requires so much labor in weeding in the seed-bed as celery. In the cold-frames, the weeds may be easier controlled than when the seeds are sown in the open ground, as they are not likely to be so numerous in the frames. Besides, the work will require to be done before outside operations begin, and when there is usually more time to do it.

No watering is likely to be necessary for the seeds of cabbage or celery in cold-frames, but the sashes must be raised for ventilation in warm days. In six or seven weeks from the time of sowing, the cabbage plants will be fit to set out. At about the same time, the sashes should be taken off the celery plants, leaving them fully exposed to the weather—that is, provided they have been duly hardened off by ventilating. If they have been kept too warm and are tender, of course it would not do to expose them at once to the chilly nights that we often have through May. We find a good plan to be in such cases to first strip the sashes clear of the plants during moderately warm days, covering them at first every night, but as the season advances, only covering when the night seems likely to be unusually cold.

This method of raising plants of cabbage or celery in cold-frames may be employed in all sections where operations in the open ground are not begun sooner than the first of May, and in the case of the cabbage plants may be adopted advantageously anywhere, only of course suiting the time of beginning to the latitude. What would suit for New Hampshire in March would answer for New York in February.

Peas for Texas.

A Texan correspondent writes: "I have been experimenting three years to find what to plant of the varieties of peas, that one planting might give a good succession, both to save trouble, and because the early plantings always do best, and planted in succession they would be caught by drouth.

"By planting about the middle of February, I have Carter's First Crop in 50 days, or early in April, 10 days earlier than Early Kent, and 20 days earlier than Tom Thumb. Closely following comes Waite's Caracacus and Laxton's Prolific Early Long Pod, each fuller and better than its predecessor. Then comes McLean's Premier, and for size, flavor, and good qualities generally, it ranks first with me. All who see them are full of admiration, and I even have visitors just to see that pea. Following this, and completing the succession, is another valuable

will do, but as a general thing it will not, and the above is what may be done at one planting by choice of proper varieties."

[Our correspondent's plan of planting early and late varieties of peas at the same time is worthy of consideration. In the hurry of spring work one sometimes forgets to keep up a succession, and we have found it better to make but two plantings—one for the earliest smooth peas, which are put in as soon as the ground can be prepared, and another for the wrinkled varieties, of which the seed decays more easily than that of the other, and these need a warmer, drier soil to hasten germination, and get them up before a long rain sets in.—ED.]

A New Variegated Cockscomb.

We are glad to see that the old-fashioned Cockscomb is of late attracting the attention it deserves. A poorly-grown Cockscomb is a shabby affair, while a well-developed specimen is very satisfactory. We not long ago gave an account of a new Japanese variety, and now give an engraving of still another novelty in the way of Cockscombs—a gold and crimson variety of *Celosia cristata*. This new comer is offered for the first time by Messrs. Briggs Brothers, of Rochester, N. Y., who in their quarterly catalogue for January give a fine plate showing the plant in its natural colors. The gold and crimson, which in an engraving can only be represented by light and dark, are described as being exceedingly brilliant and distinct, even when the golden part, as it often is, is dotted and streaked with crimson. The foliage is said to be of a light grass-green, and the stem is often marked with a bright red stripe running up to the flower-head; when this occurs, the leaves are more or less tinted with a bronze red. The plant in good cultivation attains the height of three feet, and in order to give it the benefit of a long season, it should be sown early under glass, and grown in pots of rich soil until the weather is warm enough to allow the plants to be turned out. The variety is said to come very true, but few self-colored ones being produced. Some of the pyramidal forms of *Celosia* are very



NEW VARIETATED COCKSCOMB.—(*Celosia cristata variegata*.)

well-known kind, Champion of England. It is as good as the Premier, but not so large, and is the most productive of all, most of the pods showing seven or eight peas, and the vine covered with them from top to bottom. The succession extends to the middle of June, and until we are ready to give up this delicious vegetable for the succeeding ones.

"In a favorable season successive plantings

desirable annuals, and make a great show. There are white, yellow, rose, and crimson varieties. We notice that Messrs. Briggs Bros. offer *Celosia Huttonii*, a new species which has attracted much attention in Europe. It is one of the pyramidal sorts, grows from a foot and a half to two feet high, of a compact bushy habit, and has dark foliage and bright crimson flowers. We have not yet seen this novelty.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

A Home-made Extension Lounge.

Anybody can knock up such a lounge with a few carpenter's tools. It is a very convenient thing to have in the house, it is so easily turned into a bedstead when an extension is required.

There is, first, the light frame of an ordinary

lounge, made with four posts, held in place by four light narrow boards on the sides and ends, with narrow slats nailed across the top from side to side. There should also be a support running through the middle of the top of the lounge from head to foot. A few of the slats are nailed to this support if it is not sufficiently firm without. The slats should be narrow, not more than an inch and a half in width, and placed evenly a little more than two inches apart. This completes the lounge-frame without the extension.

Unless the lounge-posts are ornamental, a curtain

alcohol, which can be had of any druggist. Bird skins are very liable to be attacked by insects, and soon become unsightly and fall into decay if not poisoned in one of the methods we have mentioned. If either arsenic or corrosive sublimate is used, it must of course be with the greatest care. We wish we knew of some other way of preserving skins, but do not. If any one succeeds with less poisonous things, we should be glad to hear of it.

The fan here figured was made from one of the fancy breeds of pigeons, but very fine ones can be made from the common wild pigeon that is caught in such great numbers in the Western States. The iridescent feathers on the breast of these pigeons are truly beautiful, and some very expensive muffs are made of the skin from the breasts of these birds.



Fig. 1.—FEATHER FAN.—FRONT.



Fig. 2.—FEATHER FAN.—BACK.

lounge, made with four posts, held in place by four light narrow boards on the sides and ends, with narrow slats nailed across the top from side to side. There should also be a support running through the middle of the top of the lounge from head to foot. A few of the slats are nailed to this support if it is not sufficiently firm without. The slats should be narrow, not more than an inch and a half in width, and placed evenly a little more than two inches apart. This completes the lounge-frame without the extension.

To make the extension, make two more posts like the other lounge-posts, and unite them by a narrow board like the sides of the lounge. Nail to the top of this side-board as many slats as there are spaces in the top of the lounge, taking care that they are narrow enough to slip into these spaces easily, and all evenly placed and nailed. This is all there is of the extension, and it looks frail enough by itself. But place it upon the lounge so that it has the support of the side pieces and middle "stringer" (perhaps that isn't the word—perhaps my technology is all wrong, for there is no one at hand just now to help me to correct terms, and when I have said beams and boards and rafters, that is about the limit of my knowledge in this department)—well, then you have quite a respectable lounge, and you may convert it into a serviceable bedstead when need requires—a wide bed or a narrow one, as you please.

A good way to fit up the lounge: Make a thick box mattress to fit the shape of the lounge. Make two other mattresses of equal thickness, each half as large as the lounge mattress. Fill them (very

tacked across the front, and separate ones tacked across each end, would add to the good looks.

Dimensions of the frame: One foot high, six feet long, two feet wide.

AUNT JANE.

A Handsome Feather-Fan.

A remarkably pretty fan was left at this office not long ago. The engravings which we give of the two sides show very clearly how it is constructed. The head and breast of a pigeon are stuffed, to preserve the natural form, and the wings being spread to their utmost extent are allowed to dry in the position shown. Upon the back side of the fan the skin of the bird is drawn together, and the place where it is joined is covered by an ornament of some kind. It is necessary that the skin of the bird be preserved from the attacks of insects by rubbing it over with some substance that will be either poisonous or repulsive to them. All bird-stuffers use arsenic to preserve their skins. They dust upon the fresh skin all the arsenic that will adhere to the flesh side. Those who do not care to use arsenic for this purpose can brush over the skin with a solution of corrosive sublimate in

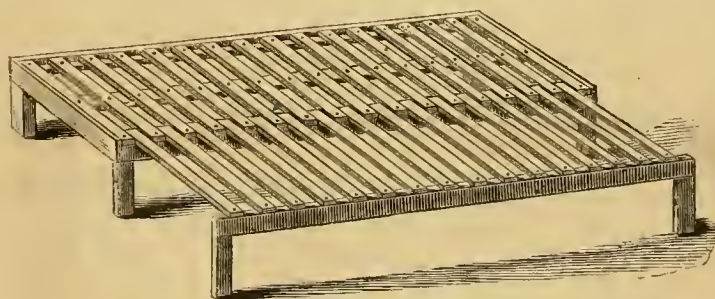
Home Topics.

BY FAITH ROCHESTER.

ONE'S LOT IN LIFE.—When I took up my pen I suspect that I was about to write some sort of an "essay," but a letter peeping out of a crowded bag of unanswered letters upon my table suggested a new thought, and I will give here an extract from that letter. It came to me a few months ago, from one of the readers of these "Home Topics," and I still hope for the privilege of giving it a personal answer. Bless the dear woman for making that sweet letter to me a part of her celebration of her baby's second birthday!

"A great many of your rich experiences I know nothing practically about, for I am differently circumstanced. I do not have the real pleasure of practical housekeeper experiences, for I keep two girls usually, and the first year of baby's life I had a little more besides. I grow very weary sometimes of the care of such a household, and am tempted to sigh sometimes for my girnmood's Utopia of married life; a little house ('love in a cot,' you know), just big enough for husband and baby and myself, and to do my own work. I get so tired of so much company as we have, and the demands of society that take so much of my time, and often wish for a quieter life. But we can not know what is best for us, and so I am most grateful for the comforts and luxuries with which my loving husband surrounds me, and strive to keep up as well and evenly as I can in all the duties that come to me. I am thankful that not only is my life full, but that I am ready and willing to work, even beyond my strength, though it is not just the kind of work I would choose. I find that I can not always stop at home with my baby when I want to, nor pay as little attention as I would like to dress and society, etc., and as much to self-culture and mental growth, to charity and my own inner spiritual life. But I mean to do the best I can, and trust God for the rest."

After I had read this letter through, I passed it across the table to one with whom I like to share



A HOME-MADE EXTENSION LOUNGE.

all the best things that come to me. Perhaps it had something to do with his conclusions given in a late letter from a neighboring city.

"I found quite an interesting study in the faces of the wealthy and fashionable ladies in church. They are not frivolous, and I don't believe their lives are frivolous. There is so much cant about their luxurious idleness and heartlessness. They have to choose their path carefully, and with tears,

as well as the rest of us. And I suppose they have no small job on their hands in undertaking to keep their men up to their best estate—husbands, brothers, sons, etc.”

Well, my letter bag has spilled itself all over my table, and I pick up another scrap.

“I went last evening to the wedding of an acquaintance. Three hundred guests, a great deal of elegant dress, the house beautifully trimmed with flowers and vines and autumn leaves. It was all beautiful to look at, and I should have enjoyed it very much if I had not been obliged to make myself tired and sick with three days’ work on a dress to wear. Is it not too bad? I was as simply dressed as any one there too. This question of dress vexes me sadly and refuses to take any reasonable shape. One must either leave society altogether or conform to a measure to its laws, it seems; and the very simplest one can do requires a great deal of time and a great deal of hard work, and is most uncomfortable when you have done. I rebel against it, but I don’t see my way out of it until we are out of this world. I sometimes wish I could go into the wilderness to live, but I should want and should need music and cultivated society, etc.”

Another one writes: “Before I had children I used to think how much I should enjoy teaching them. I would search the woods with them for flowers, go on mineralogical excursions with them, etc., but I find so little time and get so tired, I have no vivacity or enthusiasm left sometimes.”

And here is a brief but cheerful letter, written at nearly midnight, by a woman who has three children under five years of age, and none old enough to give any real help, a baby sick with gathering in its head, a husband with a broken arm, a decrepid octogenarian mother-in-law, another invalid relative boarding with her who can not even make her own bed, and three different hired girls, one at a time, within three weeks.

There are other letters, and almost all speak of trials of one kind or another, but not of trials only. Most of us are aware that this is only the “common lot” of humanity. The “burden of the race” is upon us. Each of us must suffer in some way until we become so wise and Christian that we all unite to take care of each.

Some persons seem to have no trouble and no care, but often theirs is the saddest possible lot; and one who realizes that this life is given for the education of the soul, or is simply a primary school, would sooner take the lot of the patient Christian washerwoman who, with her half-dozen children crowded into a single room, still has a heart to feel for every human child, than have all the luxuries of the wealthy and hatred therewith.

There are people who are dying because they can not get work enough to support themselves, and there are as many more, perhaps, who are killing themselves by overwork, unable to get the help they need. Pain and Poverty have victims everywhere. The flesh is weak, and these things are hard to bear; but a perfect trust in the goodness of God makes the spirit willing to endure, however nature may cry out in pain.

My letter-bag again. And here is a long letter from the best school-master our house acknowledges at present, or, perhaps I might say, our best interpreter of divine things. I quote:

“The distinctive glory of man (over animals) is personality or character, the power of transcending his organization and realizing divinity; and he attains to this personality or character, not by any foolish doing, but by wise and patient suffering; that is, by subjecting his self-will, or will of the flesh, to the welfare of his neighbors, whenever it self prompts injustice to them.”

Here, then, is a hearty hand-shake of sympathy for every one who “means to do the best she can and trust God for the rest,” and pity for all who are less wise. May none of us make such a wretched failure of life as to be wearied by our personal burdens out of all sympathy with the universal progress of our race, or so cowed in disposition and broken in spirit by our losses and crosses as to be of little use to humanity. May none of us be lifted up with pride because of our transient successes in

material things, or selfishly rejoice in our personal prosperity with no care for those less “fortunate.”

CHILDREN’S READING-BOOKS.—Johnny must have a new Reader. His old one has been destroyed, or he has just come into a district where a different series of Readers is used. He read very indifferently in the Third Reader, and is far from being fitted to try anything more difficult. But his father is “penny-wise,” and reasons thus: It will not be long before the boy will read well enough for the Fourth Reader, anyhow, and I may as well get one now and save the expense of two books. So Johnny has a new Fourth Reader, and annoys the teacher every day by his blundering attempts to express ideas by reading, which are entirely beyond his comprehension.

In a graded school this could not happen exactly so, for the boy would be obliged to read with such class and in such book as his teachers decided upon. Yet in almost all schools a child’s progress in reading is tested too much by his ability to call words correctly, rather than by his power to express the ideas and language of the author in an easy and natural manner. In country schools it is not uncommon to find children who read at home, from choice, only the simple stories written for children, at school rattling off or stumbling through extracts from the mature writings of the best authors which can hardly be explained to their undeveloped minds, even if the teacher should have time to make careful comments on each paragraph.

No child treated in this way can become a really good reader. He begs his parents for a new book, “because,” he says, “I have read this old book through three times!” Most parents do not see that this is no excuse for a higher Reader. A good teacher makes her pupils practice reading the same lesson over and over again until the ideas in it become perfectly familiar, and are easily expressed by the young reader; and if a reading book has simply been “read through” three or four times its best use has not yet been found.

Parents who have the responsibility of purchasing school-books for their children without any particular advice from the teacher, except in regard to the series of books used, should take care in selecting reading-books to get such as the pupils can understand as they go along. But it is better to take counsel of the teacher before purchasing. These remarks are not adapted to all localities, but parents do well to consider the matter.

SOUPS, ETC.—A New England sister writes me some excellent suggestions about making soup, which I give to the readers of the *Agriculturist* in her own words.

“I have just put a bone on to boil for a soup, and that reminds me that I have seen nothing in your articles about soups. We use them a great deal, not buying meat especially for them, as the cook-books say, but making them out of what many throw away. In the first place, I never boil any fresh meat for any purpose but I put in enough water to have a nice soup of the liquor.

“Then, whenever I roast a piece of meat, I cut off at the table all that will slice nicely, and afterwards put into a kettle of cold water the bone with whatever attaches to it, and let it simmer slowly on top of the stove till the meat will all slip from the bones readily. This meat I look over, separating the good meat carefully from the gristle (giving the gristle to the hens—the bones also are pounded up and given to the hens) and the good meat I pick in bits or chop fine, season with butter, salt, pepper, summer-savory, or thyme, moistening it in a spider with some of the liquor in which it was boiled. Toast a slice or two of bread, and lay on a platter, moisten the toast with a little water and put the meat upon it, and it makes a very palatable dish for breakfast.

“The liquor for soup I strain, set away until cool, and then remove all of the fat. This I do with all soups. Sometimes I make a soup by putting two or three onions sliced fine into the liquor, seasoning with summer-savory, salt, pepper, and thickening with rice or macaroni.

“Sometimes I make a bean-soup of it; and some-

times I make a vegetable soup, taking a carrot, a turnip, a parsnip, four or five potatoes, and a couple of onions, slicing all fine, and boiling slowly for an hour or two, or even three hours.

“Before serving, I usually take out the vegetables, mash fine in a pan, and return them to the kettle. Most housekeepers omit this, I guess.

“Just now we had been chipping off beef from this bone. It was frozen stiff, so it was chipped off like dried beef, put into the spider with a little salt and butter, and partially cooked. Then milk or water was added (we always use milk) and thickened with flour like dried beef-gravy. We add an egg when we have it.

“This bone will boil all day, and when the meat is done to rags I shall carefully look it over, strain the liquor, and proceed as described above. If one wants the soup to look clear, it must only come to a boil, then simmer on the top of the stove. Hard boiling makes it look muddy.”

Many thanks to the experienced housekeeper for this explanation of her way of dealing with fresh beef. Observe the economy throughout. I may say that liberality or charity goes hand-in-hand with economy in her household. I often think of her explanation to me that it was by such careful economy of all materials that they were able to have anything to give away. She also tells me their way of keeping fresh meat all winter, even into the month of April, without spoiling.

The beef is cut into pieces convenient for handling—into baking and boiling pieces, etc. Then it is exposed to the cold until frozen solid. Each piece is then wrapped carefully by itself in clean paper, and it is all packed away in sweet hay enough to prevent its thawing when warm spells come on. It keeps as safely as in an ice-house. Sometimes she takes out the pieces and exposes them to the cold fresh air for a little while, fearing that they may get musty. Of course, “corned” or pickled beef can not compare with this fresh beef.

Recipes.

The following recipes have been sent us by Mrs. H. S. P., who states that she has tried them:

Ginger-Snaps.—One pint of molasses; two thirds of a cup of butter; one teaspoonful of ginger; a small half-cup of sweet milk; in one measure each of Horsford’s preparation. Mix well in flour enough to roll out.

Soft Gingerbread.—One and a half cup of molasses; two thirds of a cup of sour milk; half a cup of butter; one teaspoonful of soda; one teaspoonful of ginger.

Sweet Sauce (for all kinds of puddings).—Half-cup of butter; one cup of sugar; one cup of milk. Stir the butter and sugar to a cream; boil the milk, and while boiling stir in one teaspoonful of corn-starch previously mixed in a little cold milk; pour the milk while boiling over the butter and sugar.

Steamed Pudding.—Two cups of sour milk; two cups of flour; two cups of corn-meal; half a cup of molasses; two small teaspoonfuls of soda; little salt. Steam one hour and a quarter.

Delicate Cake.—The whites of five eggs beaten to a froth; two cups of white sugar; half a cup of butter; one cup of milk; three cups of flour, and one measure each of Horsford’s preparation mixed well in the flour.

Mountain Cake.—Two eggs; one cup of sugar; half a cup of butter; half a cup of sweet milk; two cups of flour; one teaspoonful of cream of tartar; half a teaspoonful of soda. A little nutmeg and fruit improves it.

Apple-Jam.—Weigh equal quantities of sugar and good sour apples; pare, core, and chop the apples fine; make a good clear syrup of the sugar; add the apples, juice and grated rind of three lemons, and a few pieces of white ginger. Boil it until the apple looks clear and yellow. On no account omit the ginger.

BOYS & GIRLS' COLUMNS.

About Skates.

In November it was stated that the curious thing figured in September last was the egg of a Skate. Several



THORNBACK SKATE.

have written to ask what kind of a fish a Skate is, and one is disposed to be humorous over the matter. He writes: "We have plenty of skates here in winter; they



BARB OR STING OF A SKATE.

go in pairs. But these do not lay eggs; they often lay out our boys, and girls too, with a big thump. These leave no snacks, but sometimes a big 'bump,' as Johnny calls it, on the back of the head."

An engraving will give a better idea of a Skate than a description, so we give it of one of several kinds that are found. It is the Thorn-back Skate. They are all flat, thin, and broad creatures, of the general shape of the one figured, and some grow very large, and weigh over 200 pounds. The mouth, nostrils, and gill-openings are below, while the eyes are upon the upper side. They are of a dark mud-color, and when lying close to the bottom are not easily discovered. One kind of Skate is the Sting-Ray, or "Stingere" of the fishermen. The tail of the Sting-Ray is very long and slender, and is armed with a bony lace, which has upon its edges teeth like a saw, with which it is capable of inflicting a severe wound. We knew of the death of a young lady from a wound by one of these fishes. Master Christopher D. Chandler, of Fair Haven, N. J., sent us one of these barbs or "stings," from which we have had an engraving made. It is shown of the natural size. Master C. says that he uses the tail for a riding-whip.

Letters from Young People.

It is always pleasant to read letters from young people, and we now and then publish one, but we have not room to allow us to do so as often as we otherwise would. Here are two letters from two brothers in Indiana, which we have kept since last winter, waiting for a chance to print them. We give only the principal parts of the letters. The first is from Clarence, who writes:

"We have had awful big snow-storms this winter; I never saw such heavy ones. My Pa was at court some ten days, so I had a pretty good chance to test their depth, as we boys had to go about fifty rods twice a day to feed our cattle. Sometimes I would let my colt out of the barn, and I tell you he made some motions that were laughable. Sometimes he was on his hind feet and sometimes on his fore feet, and sometimes he was so smart that he got on his side. It was fun! I am eleven years old. I study mental arithmetic, geography, reading, writing, and spelling, and work on the slate evenings, but I can not get ahead in my spelling-class. You must not think I don't study. I do study hard, and improve in all the rest."

That is right, Master Clarence, keep at it and you will soon succeed with the spelling. Indeed, the letter had very few mistakes. Here is what Master Timmy says:

"Clarence brags wonderfully on his colt. Well, he is a nice fellow. We boys think him as nice a one as Indiana can afford. But, sir, I have a pair of two-year-old steers that beat him for handiness. I forgot to tell you how I got them. My folks named me for my uncle Timothy, and he gave me a little lamb. I kept getting more and more until I got my steers, which I think are worth \$40. I could have sold them last fall for \$30, but I found out the man wanted to kill them, and I would not let him have them. I can get on either one of them and ride all over the north woods after the cows, with nothing but a leather-wood bark on their horns, 'just as nice as a pink.' I can make them mind to the world. They can trot pretty fast. Sometimes they jump over logs, and Tim finds himself getting up on the other side, but not very often. I can ride either of them up to the gate, let him through, and make him stop until I shut it, and make him come up to the fence and I get on again and off I go. My studies are the same as Clarence's. Almost every night I pass to the head. Am four years younger than he, and I don't spell in the same class. My pa is an old school-teacher, and so is Ma: they train us at home. I most forgot to tell you I got called on the floor almost every day for mischief, but I always have good lessons."

The Doctor's Talks—About a Candle.

We do not seem to get along very fast with our candle, as we have had two talks and have not yet got to the most interesting part, the burning of it. We have seen that all candles are some solid substance that can be melted by heat, and how the liquid tallow (or whatever else the material may be) rises in the wick a short distance and then it is burned. But the tallow is changed again before it burns. A little heat turns it from a solid to a liquid, and a still greater heat makes this liquid a vapor. You know that we have solid water or ice, then liquid water and the vapor of water or steam. Well, the fat of the candle before it is burned is turned into vapor. It takes a great deal stronger heat to turn the tallow into vapor than water requires, but the heat of the flame does it. Some of the tallow vapor in burning gives out heat enough to make more, so the supply is kept up. If you look at the flame of a candle when it is burning quietly, when

there are no currents of air to blow it about, it will appear very much as in figure 1. The brightest portion is at the top and sides, while the part just above the wick is dark. The burning can only take place where the vapor of the candle can touch the air, and the inside of the flame is full of tallow vapor, all hot and ready to burn. You can prove this is so by a very pretty little experiment, if you are so fortunate as to have a small glass tube; but as all of you are not likely to have a tube at hand, I will make the experiment for you and give you a drawing of it. The glass tube should be five or six inches long, and the bore about the size of a knitting-needle. This is then held in an inclined position, with its lower end in the dark part of the candle flame. Very soon the whitish vapor from the interior of the flame will appear at the upper end of the tube and pass out in a tiny stream, and by applying a light it will burn with a small flame, as in figure 2. This shows very clearly what there is in the center of the candle-flame. There is another way to show that the

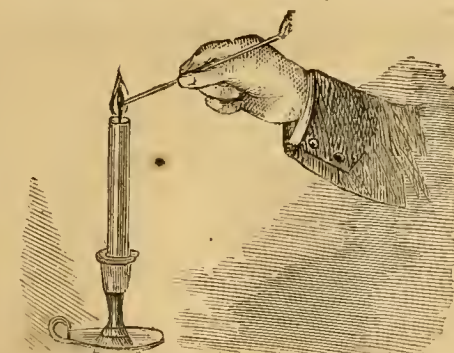


Fig. 2.—BURNING THE VAPOR OF A CANDLE.

vapor of the tallow is what burns, and it is an experiment that no doubt many of you have already tried.

If you blow out a candle flame with a sudden puff, a small cloud of the hot vapor will arise from the wick, and if you apply another candle flame or a lighted paper to this cloud, as in figure 3, it will catch fire at once and

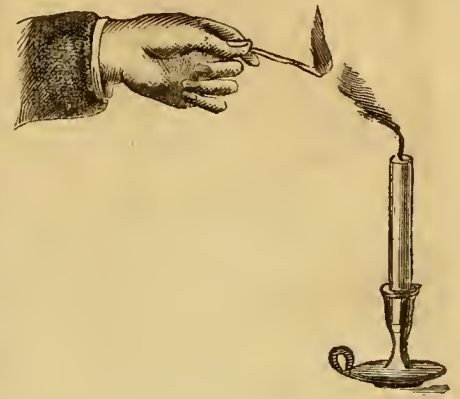


Fig. 3.—LIGHTING A CANDLE BY VAPOR.

thus relight the candle. If this is cleverly done, the flame will run along the vapor for several inches, but you must apply the light to it quickly before it has time to cool. So the burning is going on at the outer surface of the flame while the interior of the flame is filled with vapor and comparatively cool. The heat is where the air and the fuel meet. You can convince yourself of this by a simple experiment. Take a strip of white paper and hold it directly upon the flame of the candle, as shown in figure 4. You will see that the paper begins to scorch in a ring, leaving that portion of the paper that is over the

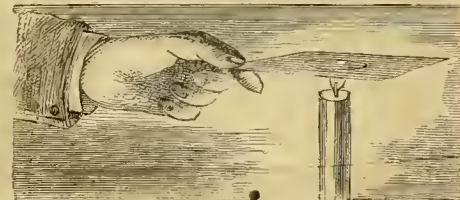


Fig. 4.—SHOWING WHERE THE HEAT IS.

center of the flame untouched. By a little care you can succeed in getting a burned and charred ring with the central portion white and unburned. So let us sum up our candle story and see how far we have told it. The fuel is in the first place a solid, like tallow, with a wick in the center. The solid is melted by heat and becomes a liquid, which rises in the wick by capillary attraction. In the wick the melted tallow meets with still greater heat and becomes a vapor, which burns to give the light and heat that we see and feel in the flame. This flame is a cone of vapor burning upon the outside only, while the inside is full of vapor that has not yet been burned. As we have been going on with our experiments, the candle has been growing shorter and shorter. What has become of it? "Burnt up," you will say, but that answer will hardly satisfy you, for it is not possible for us to get rid of a thing in that way. What was the candle has gone somewhere, and still exists in some shape or another. That is a matter that we shall have to look into.

Aunt Sue's Puzzle-Box.

ARITHMETICS.

- | | |
|-----------------|---------------|
| 1. 10100900160. | 6. 1010500. |
| 2. 9005001155. | 7. 11155500. |
| 3. 1102000250. | 8. 72504250. |
| 4. 117125080. | 9. 500801000. |
| 5. 150250160. | 10. 79. |

OTIS A. GAGE.

NUMERICAL ENIGMA.

I am composed of 11 letters.
My 1, 2, 3, 4, 5, 6, 7 is moderate pleasure after pain.
My 8, 9, 10, 11 is having competent strength.
My 1, 2, 5 is what pigeons do.
My whole is being in a state of case.

FREDERICK A. SCHULTZE.

CROSS-WORD ENIGMA.

My first is in cream but not in butter.
My next is in sleigh but not in cutter.
My third is in lake but not in river.
My fourth is in arrow but not in quiver.
My fifth is in Adam but not in Eve.
My sixth is in Rufus but not in Steve.
My seventh is in knives but not in spoons.
My eighth is in wolves but not in raccoons.
My ninth is in tavern and also in guest.
My whole is a well-known town in the West.

WILLIE H. K.



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LOCKED OUT.—*Drawn and Engraved for the American Agriculturist.*

PI.

Etteconn si het rute slopher'ohips notes.

SQUARE WORDS.

1. Square the word "WORD." HARRY M. D.
2. Square the word "HOLD." JOHN BRIGHT.

HIDDEN CITIES.

1. He went East on the noon train.
2. Tell Sara to gag that squalling boy.
3. Confine yourself to "Adam's ale," my son.
4. Pat got work on a job at a viaduct on the Erie road.
5. I told Charles to nail up the box.
6. The barrel slipped, and rolled over and over.

E. L. CLARK.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

NUMERICAL ENIGMAS.—1. Skaneateles. 2. The American Agriculturist.

SQUARE WORDS.—

- | | |
|----------|----------|
| 1. MERIT | 2. SEVEN |
| ELUDE | EROSE |
| RULER | VOLTA |
| IDEAS | ESTOP |
| TERSE | NEAPS |

PROVERB PL.—

1. He who gives freely gives twice.
2. Every dog must have his day.
3. Make a virtue of necessity.
4. Brevity is the soul of wit.
5. Never judge by appearances.
6. Good counsel is above all price.
7. A good beginning makes a good ending.
8. Never go half-way to meet misfortune.

ANAGRAMS.—1. Incomprehensible. 2. Ligatures. 3.

Velocipede. 4. Galvanize. 5. Humiliate. 6. Resonant. 7. Gluttonous. 8. Alchemists. 9. Yielding. 10. Upstart.

CROSS-WORD.—Carrie.

DOUBLE ACROSTIC.—A rie S
G eorgi A
A n T
T e A
E lusio N

PUZZLE.—Never too late to mend.

AUNT SUE's address is Box 111. P. O., Brooklyn, N. Y.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

EUGENE A. P.—Thanks for your diagram puzzle, but it has too many solutions to be valuable.

Thanks for puzzles, letters, etc., to Gus and Joe, Harry H. Doan, Albert M., Frank L. W., George H. S., Alice E. B., F. P. C., Frank Kennedy, R. W. M., and B. F. S.

Locked Out.

You probably all recollect that nursery rhyme which begins, "Pussy-cat, Pussy-cat, where have you been?" And how Miss Passy was supposed to answer, "I've been to London to see the Queen." We don't think that Pass in the picture, if asked to give an account of herself, could make as satisfactory a reply as the Pass in the rhyme, as she is out late and evidently has been naughty. Pass knew as well as could be that little Bella, her mistress, did not like to have her running about like any common cat. Indeed she was an uncommon cat, for what common Pussy, her mistress thought, ever had such beautifully marked sides, and such a tail! Did any common cat ever have such a nice cushion for a bed, or such an abundance

of good food? What common cat was ever so loved, so petted, and so trusted? Why, Bella would even leave her alone in the room with the canary bird, knowing that the bird would be safe, which it never would be with a common cat. But like some children who are not content with what they have, Passy thought there must be something better away from home. She had heard many a night the other cats out on serenading parties, and she thought it must be such fun! One evening Pussy watched her chance and escaped from her cosy home. She was not long in finding young friends, young pussy boys and girls, going off upon a serenading party, and she gladly joined them. She noticed that they had ways and used language such as she had never known before, but they all seemed so gay! What a wild time they had as they crawled along the tops of fences, clambered over walls, and romped upon the roofs of sheds and porticoes. Sing! How they did sing! Pussy for the first time in her life found out what a voice she had, and as they were all doing their finest piece of music, for it had begun to be daylight, there was a tremendous bang, and pussy was for a moment stunned. As soon as she came to herself, she found that she was alone upon the roof of a low shed, her companions had all run away, and by her side was a boot-jack, which some person, not liking music, had thrown at the serenaders. We need not try to describe Pussy's feelings, as with her back almost broken she slowly made her way home, only to find every door and window closed, and that she would be obliged to wait for some hours out in the cold snow until the house should be opened. Do you suppose Pussy ever again left her kind mistress and her nice cushion by the fire to go off upon such another party? We don't know. We do know that cats are sometimes very treacherous when they look so meek, and that some cats do still give serenades.

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\$2000 worth of Fruit and Vegetables sold in one season from two acres by a professional man who averaged but one hour a day in his garden.

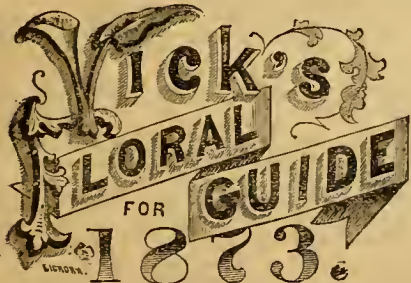
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This season I have a new and exceedingly valuable squash, new varieties of corn, three fine melons, and other choice new vegetables for my customers.

My business is to supply what every good farmer is anxious to get, the very best of vegetable seed. I grow a hundred and fifty kinds on my four seed-farms, right under my own eye, making new vegetables a specialty, besides importing their choicest varieties from European growers. A fine selection of flower seed, home-grown and imported, will also be found in my Catalogue, which will be sent free to all applicants.

As stated in my Catalogue, all my seed is sold under three warrants—1st: That all money sent shall reach me. 2d: That all seed ordered shall reach the purchaser. 3d: That my seeds shall be fresh, and true to name.

JAMES J. H. GREGORY, Marblehead, Mass.

The Dudley Seed Farm.

New Pea—Prodigious. The largest, most delicious, and best cropper in cultivation. Per pkt., 5c.; per quart, \$1.50. Sixty-day Sweet Corn. The earliest and best flavored. Per pkt., 5c.

I have proved the above, and recommend them. Catalogues free. Send for one.

G. A. LAW, Rosindale, near Boston, Mass.

SEEDS.

Everybody should try the Gypsy Watermelon, Ward's Nectar Muskmelon, Chili Squash, Mammoth Pumpkin, Trophy Tomato, Egyptian Beet. Each 10c. pkt.; 3 pkts., 25c.

My Catalogue for 1873

Contains all the very best Garden and Flower Seeds in cultivation, and will be mailed to any address on receipt of a stamp, or for 10c. with a pkt. of any of the above seed. Send for it, and give my seed a trial.

H. E. ACKER, Seed-Grower, Woodbridge, N. J.

FLOWERS for the MILLION,

AND

Millions of Plants to Grow the Flowers on.

ROSES, VERBENAS,

SEVEN, FIVE,

All for \$1.00. By mail.

Price-lists of Greenhouse and Bedding Plants sent to any address.

MASSEY & HUDSON,
Chestertown, Kent Co., Md.

MINNESOTA DENT.—The earliest Dent Corn. Hundred-Days Dent—very early, mammoth ears, great cropper.

York Dwarf Wax—the best snap-bean. White Case-Knife—the most prolific pole-bean. Per qt., 50c.; ½ pt., 15c.

Siber Maple—the best quick-growing tree. Fresh seeds sent in May. Per lb., \$1; pkgs., 10c.

White-seeded Dwarf Wax-Bean. Mammoth Russian Sunflower. Gen'l Grant Sweet-Corn—the sweetest and latest of the Mammoth kinds. Earliest Minomah Cucumber—small, but earliest of all. New Peach Tomato—perfectly smooth and handsome, best for canning. Eugene Winter Squash—thin skin, good keeper, sweet and delicious. Mammoth Chili Squash—often weighs over 20 lbs. Golden Superb Melon—truly superb in sweetness and flavor. Campbell's and Thorburn's Late Rose, and Lapstone Kidney Potatoes—all three very prolific, and the last extra for baking. 4 lbs., 75c. Warranted pure and true. Free by mail.

J. M. BENTHALL, Quasqueton, Iowa.

"DURRA CORN."—Best Corn for soil-ing. Cows, Horses, Mules, Pigs, Sheep, and Chickens will eat stalks, blades, and grain. Yielding from 50 to 100 bushels grain per acre. 25c. per bushel, post-paid.

A. W. STUART,
Lock-box 69, Natchez, Miss.

WHITE PROBSTER OATS have produced 417 bushels on four acres. Straw strong; not liable to lodge; hulls thin. Weight, 33 lbs. per bushel. Price \$1.50 per bushel. Also, Excelsior Oats, Seed Corn, Potatoes, and Garden Seeds. Send two stamps for Circular and samples of oats.

BERKSHIRE PIGS from imported stock for sale in the spring. WM. NEWTON, Henrietta, Monroe Co., N. Y.

EARLY ROSE, Late Rose, and Peerless Potatoes. Connor's Colossal Asparagus. Charles Downing Strawberry Plants, \$2.75 per 100; Boyden's No. 30 and Kentucky, \$3 per 100. A. MUEL C. DE COU, Recklesstown, Burlington Co., N. J.

GENUINE SURPRISE OATS. By mail, prepaid, 4 lbs., 75 cts. By express, 1 peck, 75 cts.; ½ bushel, \$1.00; per bushel, \$1.75. Address A. C. WYAND, Eagles Mills, Washington Co., Md.

IMPROVED CONN.

Broad Leaf Tobacco Seed.

"THE OHIO VARIETY."

Our leading Growers, who have tested this new kind, do not hesitate to give it the highest indorsement.

It produces not only the finest and broadest Leaf of any sort yet grown here, but it also brings the highest price for the Wrappers paid in the Hartford Market.

We have a fine stock of this Seed, saved by a noted East Hartford Grower, and cultivators will consult their best interests by ordering a supply early to prevent disappointment, as the supply is limited and in great demand.

Sent by mail at \$1.00 per ounce, or 4 ounces for \$3.00.

Boston Market Hot-House Lettuce Seed.

Choice stock and best variety for growing under glass. Per pkt., 10c.; per ounce, 75c., post-paid.

Our New Illustrated Catalogue of Choice Vegetable and Agricultural Seeds, also Agricultural Implements and Machines, for 1873, sent free to all applicants.

Address **R. D. HAWLEY, Hartford, Ct.**

Garden and Flower Seeds

FOR 1873.

Descriptive Catalogue, containing 98 pages, sent to all applicants inclosing stamp. Wholesale Price-list to dealers free on application by mail.

SCOBIE, REED & SMITH, Seedsmen,
137 Liberty St., Pittsburgh, Pa.
Successors to W. W. KNOX & J. KNOX.



Illustrated Catalogue and Floral Guide,

IN ENGLISH, GERMAN, AND FRENCH,
Mailed free to all applicants.

WESTERN-GROWN SEEDS!

Over 200 varieties of the choicest and rarest Vegetables and Flowers, the acknowledged best and cheapest in market. Among which will be found the *New French Tomato* and *Eugene Winter Squash*, proven to be superior to anything offered. Price only 10c. per paper. Most of the leading varieties only 5c. per packet.

Satisfaction in all cases guaranteed. Descriptive Catalogues free to all. Address H. BEYER, New London, Iowa.



Reliable Field and Garden Seeds.

BUY OF THE GROWER!

Upon receipt of 25c., I will forward, to any address, my Catalogue for 1873, containing a list of the old and tried, besides many new and valuable varieties of Seeds. Also, samples of the following Seeds mailed free for trial: One packet Sculptured-seed Watermelon—a new variety. Two samples of Oats—White Probestier and Yellow Littlemarian—the best from fifteen varieties tested. Two of Wheat—White Longelle and Red Barille. The White Longelle, first introduced by the Agricultural Department at Washington, was sent out in small quantities for trial in 1871, and met with great favor, having yielded in some localities at the rate of 54 bushels per acre.

Catalogue, without samples, free. Address

S. B. FANNING,
Jamesport, Suffolk Co., N. Y.



as premiums to our customers. See our richly illustrated, tinted Catalogue for 1873, now ready Free to all. **WOOD & HALL, Geneva, N. Y.**

Seed Potatoes.

Buy direct from the Grower.—Early Rose, \$3.25 per bbl. Late Rose, \$4. Peerless, \$2.75.

ONION SEED—growth of 1872, fresh and genuine, from selected onions. No Scullion seed. Large Red Wethersfield, Early Round Red and Yellow Danvers. Each \$2 per lb., by mail, post-paid; ½ lb., \$1.25.

SEE in another column offer of new varieties of seeds for trial upon receipt of 25c. to pay postage. Send for Catalogue. Address **S. B. FANNING, Jamesport, N. Y.**



Canada Victor Tomato.

I introduce to the Great Public this season a new Tomato (see reading matter of this paper), which is probably the earliest of all varieties. Every marketman will find combined in it just what he wants—viz.: extreme earliness with large size, the round or oval shape, solidity, richness of color, with an entire freedom from that greenness and cracking around the stem (which is a bad fault with some sorts), and first-class cropping qualities.

Single package, of 25 seeds, 25 cts.; five packages, \$1.00. Packages of seeds selected from the few very earliest, 50 cts. each. Dealers supplied at a liberal discount.

JAMES J. H. GREGORY, Marblehead, Mass.

DE PEW'S GREENHOUSES.

First-class stock at wholesale and retail. Specialties this season: Bonvadia Jesaminoides; Carnations; Geraniums in 20 named sorts; Roses; Calceolarias; Colons in great variety—besides the usual Greenhouse plants. Are in a fine and healthy condition and are now ready for delivery. Please send for price-list. TUXIS DE PEW, Borist, Nyack, N. Y.

To Farmers and Marketmen.

You want none but the very best of seed, grown from carefully selected seed stock. With the money you have to invest in manure, help, and glass, you know you can not afford to use any other; you feel very anxious about it; TRY MINE; Catalogues free to all.

N. B.—Call in the Spring, and see what onions, cabbages, etc., I set out to grow seed from.

JAMES J. H. GREGORY, Marblehead, Mass.

50 FINE FLOWERING PLANTS

Prepaid, by Mail or Express, for \$5.

FLOWER AND GARDEN SEEDS,

WARRANTED FRESH AND RELIABLE.

6 fine Fuchsias for \$1.00. 6 fine Roses for \$1.00. 6

For \$1.00 you may select Seeds in packets, or Plants, at Catalogue prices, amounting to \$1.20; for \$2.00, amounting to \$2.50; for \$5.00, amounting to \$6.50.

The entire 7 collections, numbering 50 Plants, sent, prepaid, by mail, for \$5.00.

6 Ast. Foliage Plants, \$1. 13 Ast. Verbenas, \$1.00. 6 ast. Geraniums for \$1. 17 ast. Bulbs for \$1.00.

My Illustrated Catalogue, containing about 100 pages, of new Plants, Flower and Vegetable Seeds, mailed free.

I pack in boxes and label all Plants except Verbenas.

CHARLES A. REESER, Pleasantville, Veanago Co., Pa.

6 ast. Geraniums for \$1. 13 Ast. Verbenas, \$1.00. 6 ast. Bulbs for \$1.00.

BEAUTIFUL EVER-BLOOMING

ROSES!

POT PLANTS.

Suitable for Immediate Flowering.

SENT SAFELY BY MAIL, POST-PAID.

5 Splendid Varieties for \$1; 12 do., \$2.

For 10c. additional we send "MAGNIFICENT PREMIUM ROSE." Elegant Descriptive Catalogue, 10c., or presented free to every purchaser.

THE DINGEE & CONARD CO.,
ROSE-GROWERS,
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DOUBLE TUBEROSE.

Splendid flowering bulbs. No. 1, extra size, 15c. each; 3 for 25c.; \$1 per doz.; \$6 per 100; by mail, prepaid, with directions for flowering.

Carnation Pink Plants, best winter-blooming varieties, 20c. each; \$2 per dozen, post-paid.

Descriptive Catalogue of Plants, etc., free.

CHAS. T. STARIT, Avondale, Chester Co., Pa.

SEE our ANNUAL CATALOGUE

of Choice Flower and Vegetable Seeds before ordering elsewhere. Sent free. Address

T. CADWALLADER & BRO., Richboro, Pa.

WETHERSFIELD ONION.

I am offering a fine stock of the above, free by mail, at \$1.50 per lb. Catalogues free. Send for one.

G. A. LAW, Rosindale, near Boston, Mass.

SWEET-POTATOES for SEED!

Nansemond, pure and sound, \$3.25 per bushel. Bottom prices on big lots. Send for circular. Directions for sprouting with each lot. Plants in May, \$20 for 10,000.

W. W. RATHBONE, Marietta, Ohio.

SEED POTATOES A SPECIALTY.

VERMONT EARLY ROSE and all the best varieties in fine condition. Send orders to TATEM & DAVENPORT, 1, 2, and 4 Del. Av. Mkt., Philadelphia, Pa.

LATE ROSE POTATOES.

Also a full assortment of superior vegetable and best flower seeds. JOHN W. TUTTILL, Sponck, Long Island, N. Y.

SPEECH OF GENERAL A. S. DIVEN,

DELIVERED AT THE ST. JAMES HOTEL, AT A DINNER
GIVEN TO THE MERCHANTS OF NEW YORK, AND
PRESIDED OVER BY GOVERNOR JOHN A. DIX.

MR. PRESIDENT AND GENTLEMEN: My understanding is that we have assembled here to-night to discuss the question whether there is to be established in this, the metropolis of the United States, an enterprise that will reflect honor upon the people of this great city, or whether we shall allow, by our supineness, an interior town, without natural advantages, to grasp from us the great benefits that are to be gained by the carrying out of this enterprise. The enterprise under consideration here to-night was fairly inaugurated in 1870, and would have been carried through then but for the fact that the charter of the Company was defective, and, after being fairly started, had to be suspended. Twice was the Governor's veto interposed to prevent our success. But for these difficulties, the people of Philadelphia would not have asked or Congress granted a series of acts by which Philadelphia is to be honored and enriched by the holding of a World's Fair, and by the United States proclaiming to all the world that Philadelphia is the commercial metropolis of this country.

The object of this Company is to purchase land and erect on the same a building which shall be used as a perpetual World's Fair, Trade Mart, Garden of Plants, and popular Art Museum. The City of New York could afford to carry out the objects here set forth as a city, and would be amply repaid. The people of New York could afford to spend millions of dollars in such objects, and would be amply repaid in the increased commerce and wealth and civilization which such enterprises invariably bring. But, aside from these high and patriotic motives, there is a reason which is stronger than all; that has done more in the past and will do more in future to consummate large projects—and that is the love of gain. In short, if this enterprise is carried out, it will accomplish this for those who aid and assist it.

It will make money; it will increase trade and commerce; it will tend to elevate and civilize the people of New York and of the world; it will dignify labor. The children of all those that in any way assist it will point with pride and honor to the work which their forefathers planned and executed.

In 1870 the Industrial Exhibition Company contracted for all the land bounded between Ninety-eighth and One Hundred and Second Streets and Third and Fourth Avenues, comprising in all 355½ lots. The contract price of this land was \$1,700,000. \$200,000 has been paid. There remains to be paid \$1,500,000. It is proposed that the balance due on this land shall be paid with the money raised for the sale of stock. To do this, it is necessary that there be sold \$1,575,000 of stock, at 80 cents on the dollar. This will net the Company \$1,500,000 in cash. This land will have cost the parties owning the same \$4,790 per lot. It was worth in 1870, taking the opinions of good judges of real estate, at least that amount. In the two years and more that the land has been held, it has increased some in value, and good judges of real estate say now that it is worth not less than \$6,000 per lot, which would make the 355 lots worth \$2,130,000. The prevailing opinion of real-estate men is that this would sell for \$7,500 per lot, or \$2,

652,500. Taking the lowest valuation put on this land by any one, and there is a profit of \$430,000; taking the highest valuation, and there is a profit of \$952,500 in the carrying out of this contract alone. It has been asked why the contract for the land could not be extended beyond the present limit—viz., Feb. 1, 1873. The reason is, simple: The parties owning the land can get, without a doubt, \$430,000 more than the Industrial Exhibition Company are called on to pay. Those persons who purchase the first \$2,925,000 of this stock become the absolute owners of this valuable tract of land, and they can decide among themselves whether they will sell the same or whether they will erect a Crystal Palace.

As this meeting is called for the purpose of considering not only the purchase of the land, but the erection of a trade-mart or perpetual World's Fair and Museum, it is proper to state the advantages to be gained by the carrying out of the whole project. I have already shown—so that it is patent to all who are interested in or judges of real estate in the City of New York—that the smallest amount of profit that could be made in purchasing this land would be in the neighborhood of half a million dollars. This is a large profit, and I will now proceed to show that, however profitable the purchase of this land may be as a real-estate venture, it would be still more profitable should the purchasers of the land erect on the same the enterprise proposed.

Popular phrase has dubbed the proposed building a Crystal Palace. The common acceptance of this name is a light, airy structure of glass and iron, subject to destruction from different causes. The building to be erected by the Industrial Exhibition Company should be substantial and fire-proof, and should be built in such a manner as to be readily converted into dwelling-houses or places of business. To provide for a change in the uses of the building, as well as to make it the more attractive for the present purpose, as well as for economy in construction, the building should be 125 feet deep, and should be built entirely around the ground, leaving a court in the center. It should be five stories in height. Each floor should be an open floor. This would give a space 125 feet wide and 3,700 feet long for each floor. The court in the center would be twice the size of Madison Square. This court should be covered. The court could be used as a garden of plants and for places of amusement. The four main floors would be an Industrial Exhibition and trade-mart. The top floor could be an art-gallery and museum and a public gallery. To make such a building of iron, the largest estimate of cost, which included the erection of the most magnificent dome in the world, is \$9,000,000, or an expense of \$25,400 per lot. This is the largest cost. An iron building that will be more magnificent than any building of its kind in the world, and one that all the world would wish to see, can be erected for \$7,000,000, which would be an expenditure of \$20,000 per lot. A granite building can be erected for a still less sum, and a brick building for a cost of about \$4,000,000.

These figures may seem and are large; but, to fully comprehend them, suppose this were the case: The gentlemen here to-night purchase this land, and they decide that they do not wish to erect a building, but see a larger profit in selling the land to individuals. They sell the 355 lots to as many persons, and each person proceeds to erect for himself a house. At the end of a year or so there is a house on each lot. Now, the amount of money that would be paid out for each house, in as good a locality as this in New York, would average about \$22,000—which would make a total expenditure of \$7,810,000. Pre-suppose another case: This land is bought; the Industrial Exhibition building is built; the one hundredth birthday celebrated, and a World's Fair held. The stockholders decide it would be unprofitable to continue the enterprise as an exhibition. Partitions are immediately made, running from cellar to roof, and you have a series of dwell-

ing-houses unsurpassed by any in the whole world; a beautiful view from the windows of the outside, and a park of twelve acres in the center, and accessible to the owners of these houses and no others. The entrances to the houses could be made entirely from the court. Some time in the future this plan will be carried out by clubs of gentlemen who desire to give to their families more comfort and more luxury than is now afforded by the ordinary house. Go to the rear of your own house when you go home to-night, and look at the immense amount of waste room that the court of the buildings on your block has, and think at what a slight cost to each house it would be to make the court a place where your children could spend their play-hours. The result of the plan and the cost of the building above described is that you have erected a building that ought to pay for the purposes intended; but, if it does not, you have a series of dwelling-houses erected, at an expense of \$20,000 per lot, or less, which is some \$3,000 or \$4,000 per lot less than would be expended on the same if individuals should erect separate houses, and you have an increased amount of room. The number of square feet of space which would be available for use, if individual houses were erected, would be, on each floor, 384,000 square feet; while by the combination plan there would be of available house-room 462,500 square feet, being a difference of 78,500 square feet in favor of the combination building. That is, you have 53 lots more covered by buildings and available for dwellings, and you have utilized the waste ground. Instead of a barren waste, you have a beautiful garden of plants, and all this at an expense of several thousand dollars per lot less than if individuals had built over these lots. To realize these figures, go into the rear of any house on Fifth Avenue and look into the court-yard, and multiply the vacant space in one court-yard eight times. I have been thus tedious for the purpose of showing you that, in case you invest your money in a "Crystal Palace" project, and the Crystal Palace is a failure, complete and entire, still you have made a good investment.

What the chances of this project paying as an Industrial Exhibition are I will now endeavor to show you. There will be in the building I have described a garden of plants. This should be made, as it can be (and the estimates given cover the cost of so doing), a tropical garden, with fountains and walks and statuary, and every known plant and flower. Every one who goes into the building should be allowed, without hindrance or charge, to go at will in this beautiful garden. Is there a person in New York who would not visit such a garden? Then there is to be an art-gallery and museum and library. These would occupy the top floor. This leaves the four main floors of the building for exhibition purposes.

It must be borne in mind that the Company's enterprise differs from all of its predecessors not in its essential character as an exhibition, but in its many additional features of great value. They have been simply exhibitions. This Company will do all they did, and will, in addition, make its exhibition building one vast trade-room or bazar. Manufacturers, merchants, and producers will not only be allowed to exhibit their wares, but also to advertise and make sale of them in the building, replacing them with other goods, and thus securing a constant succession of novelties to interest visitors. The same with artists who exhibit their pictures in the galleries. As fast as they sell one they will hang another, and so bring lovers of art again and again to the Exhibition. There will be in the main building 1,574,400 square feet of space to be rented to those exhibitors who desire to make sales. Each floor will be open, and the space occupied by an exhibitor simply inclosed by a rail, thus affording ample opportunity for visitors who have no intention of purchasing to inspect articles on exhibition as closely as those who come to buy. It is calculated that a space of 120 square feet would give all the accommodation which an ordinary exhibitor would require. The Company, then, would be able to rent out no less than 13,120 such spaces, for which

it proposes to charge at the rate of \$1 per annum per square foot. It will also furnish everything requisite at moderate annual charges.

The following will be the charges to an exhibitor for a space of 120 square feet for one year:

120 square feet, at \$1.....	\$120
Gas for same.....	100
Water.....	25
Heat.....	50
Police.....	50
Janitor.....	50
Entrance fee.....	50
Total.....	\$445

For this moderate rent any manufacturer or merchant may have a store, in which to make sales and exhibit his goods, located where visitors may reach it, landing at the very doors, from the following steam railroads: Hudson River and New York Central, Harlem, New York and New Haven, New York and Boston, New York and Westchester, Vanderbilt's Rapid Transit, Madison Avenue, Third Avenue, and Second Avenue Horse Railroads, with water communication at East River, only 1,600 feet distant. It is very fairly estimated that the charges for gas, water, heat, police, janitor, and the entrance-fee will not only pay all the running expenses of the institution, but will also furnish a handsome revenue to the Company. But then there is the \$120 a year rent for the space. This would be profit, and would amount annually to \$1,574,400. It is estimated that the number of visitors to the Exhibition will average 6,500 persons each day. The charge of admission will be 50 cents for each person. Thus the daily income from this source will be \$3,250, amounting in a year of 300 days to the large sum of \$975,000. Then there will be 96 stores below the main floor of the building, each of which will be 25 feet wide, 32 feet high, and 125 feet deep. The Company expects to be able to rent these stores at \$1,000 each, thereby adding \$96,000 more to the annual revenue. It must not be forgotten that in these estimates the large sum of \$4,264,000, accruing from the charges for gas, water, etc., has all been set aside to cover the running expenses of the Company, though probably one third of it will be profit. But, apart from this, the recapitulation of the Company's estimated income makes a splendid showing. It is as follows:

Rent of 13,120 spaces.....	\$1,574,400
Rent of 96 stores.....	96,000
Receipts from daily visitors.....	975,000
Total.....	\$2,645,400

These estimates have been purposely made low. The number of daily visitors has been put lower than the number known to have visited any similar institution, and no account has been taken of what may be received from restaurants and special places of amusement. Still, at the lowest calculation, there will be an annual income of \$2,645,400 to be divided.

In order to show to those who are unfamiliar with these subjects that the Company is more than justified in anticipating that its income will be much larger, the following statistics of the results of other exhibitions are appended. It must be remembered, also, that none of these exhibitions were open more than six months.

During the Exhibition of 1851, in London, it was visited by 6,201,856 paying visitors and 2,312,000 free visitors. 200,000 season tickets were sold, which were probably presented at the doors 20 or 30 times each during the 144 days the Exhibition remained open. The large sum of \$2,500,000 was taken at the doors of the Exhibition building. The visitors spent \$3,615,000 in the Exhibition building. The receipts of the railroad companies running into London were increased \$4,000,000 by carrying passengers to see the Exhibition. Calculating an expenditure of £10 (\$50) by each person who visited the Exhibition, and we have the enormous sum of \$310,092,800 put in circulation among the shopkeepers of London. It is estimated that the railroads and different branches of trade realized extra profit to the amount of \$64,000,000, solely in consequence of the Exhibition.

At the Exhibition at Cork, in 1852, there were 74,095 daily admissions and 54,936 season-ticket holders, and this for a city with only a population of 80,000. If a circle be described, with the City Hall of New York as its center, having a radius of 12 miles, it would inclose a population of 2,500,000 people, exclusive of the vast numbers who are always to be found registered on the lists of visitors at our numerous hotels, and none of whom would be likely to leave the city without having first paid a visit to the Industrial Exhibition.

Dublin had 634,523 daily visitors to its Exhibition, in 1854; while 366,745 tickets were sold. The population of Paris in 1855 was about 1,200,000. 5,433,564 persons, who paid at the door, visited the Exhibition and Art Gallery during the few months they were open in that year.

In Manchester, in 1857, an Exhibition was given of Works of Art. It was open only a few months; but 1,530,538 persons paid at the doors and 283,177 season tickets were sold.

In conclusion, it may not be out of place to give the number of visitors to the Central Park during the last 10 years, for a great number of visitors will certainly pass direct from the Park to the Industrial Exhibition.

Visitors to Central Park in 1862.....	4,195,593
Visitors to Central Park in 1863.....	4,326,500
Visitors to Central Park in 1864.....	6,120,179
Visitors to Central Park in 1865.....	7,593,139
Visitors to Central Park in 1866.....	7,839,373
Visitors to Central Park in 1867.....	7,927,855
Visitors to Central Park in 1868.....	7,089,798
Visitors to Central Park in 1869.....	7,350,957
Visitors to Central Park in 1870.....	8,628,826
Visitors to Central Park in 1871.....	10,764,411

The Sydenham Palace, near London, has been in operation seventeen years. It is eight or nine miles from London. When it was first built there were but few residences near it. During these seventeen years four large cities have surrounded it. It is annually visited by over 2,000,000 people. During the time it has been open it has received visitors equal to ten visits for every man, woman, and child in London. Railroads have been compelled to make long detours and to construct branches running to it. Consider that, aside from the Central Park, New York has no great attraction, while London has so many—no less than six places of equal interest with the Sydenham Palace—and you will be able the better to judge of the large number of persons that will visit this Industrial Exhibition. Let every New Yorker consider that the Island of New York is limited, that the ground selected will be in the center of the business and dwelling portion of the city, that this location is surrounded with steam and horse railroads, that it practically has a water-front connecting with Brooklyn and Williamsburgh, that this is the last piece of ground on New York Island large enough to accommodate a Crystal Palace and controlled by one body of men, that if this is not secured now it will forever debar New York from having such an institution.

It being possible that fears may be entertained by some of the gentlemen who take the initiative in this matter as to the ultimate completion of a building as magnificent as the one contemplated, careful arrangements have been made to secure them step by step as the enterprise progresses. The \$2,250,000 of stock held by these gentlemen being but a portion of \$7,000,000, which is the whole capital stock of the Company, the balance of the stock has been deposited with the Union Trust Company, to be by it held and used only for the construction of the building, as the cost from time to time accrues, and the first \$2,250,000 are made a special lien upon the land, to the exclusion of the balance, until such balance is used upon the building and in appreciating the value of the property. Thus it will be seen that those who pay for the land will be virtually the owners of it, and with them will rest whether the Crystal Palace will be built or not. If they decide to go no further than the mere purchase of the land, they can do so.

ADVERTISEMENTS.

HOW TO SAVE ALL THE FRUIT THIS YEAR.

The American Fruit - Drier

(See Illustration on page 89 of this paper.)

Recently invented and patented, is the result of long experiment to secure an apparatus within the means of all fruit-growers, and yet adapted to the largest operations, which will turn out fruit *unimpaired in its good qualities*.

It has been thoroughly tested with fruits of all kinds, and the products are pronounced by competent authorities, such as Thomas Meehan, editor of the *Gardener's Monthly*, Prof. George Thurber, editor of the *American Agriculturist*, and others, to be of

Better Quality than any before Exhibited.

The construction of the American Fruit-Drier is such that *all the sugar of the fruit is retained*, its flavor is unimpaired, its color is of the most attractive brightness, it is kept entirely clean, and is, in short, just such dried fruit as everybody wants, and will command the readiest market at highest prices.

The American Fruit - Drier

Is so simple in plan and in working, that any carpenter can make it, and any ordinary laborer operate it. Its capacity can be adapted to small or large operations. The ordinary family size will in favorable weather dry apples as fast as two persons can prepare the fruit. The cost is so moderate, that every farmer can profitably buy it to save the surplus product of his orchard or fruit-yard.

Circulars giving full particulars of the American Drier, together with the cost of construction, price of individual or farm rights, etc., mailed to all applicants inclosing stamp to prepay postage.

The American Fruit - Drier.

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I have twelve (12) acres of fine 1st-class Apple Trees, 1-yr.-old heads, that must be sold, as the ground lease expires this spring. Come and see the stock, or address for information ALF. S. SHELLER, Riverside Nurseries, Lewisburg, Pa.

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Colored Plates of Fruits and Flowers, 5 samples for \$1.

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Pear and Apple Trees, Onion Sets, Potato Onions, Cenneloe Trophy Tomato Seed, Seed Potatoes, etc., and a large list of small-fruit plants in addition to the above. Send at once for Price-list, and order early.			

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Raspberry, and plants of all the best varieties of small fruits, at lowest prices.

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Fresh Bone Superphosphate of Lime, or Dissolved Bone. Send for Circulars.

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Pure, Well-Bred, Very Choice.

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Order Spring Pigs Now.

Order Spring Pigs Now.

My fall pigs are all sold. And I should esteem it a favor if those who intend buying spring pigs from me would order early. I have a number of very superior breeding sows, and hope to be able to furnish choice pigs. I keep five stock boars, three of which are of entirely distinct strains, but all pure Essex. This enables me to furnish pigs not akin, and well suited to start a herd for breeding purposes.

My prices for such choice thorough-bred stock are quite moderate, and I take special pains to select such pigs as will mate well together.

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THE Superior HAY SPREADER can not be surpassed for Workmanship, Durability, and Lightness of Draft.

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"Pet-Stock, Pigeon"

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The superior advantages that these lands possess in point of location, lying on the direct high-way running East and West between New York and San Francisco, are at a glance comprehended by every one looking to a rapid increase in the value of real estate and farming lands.

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FOR SALE BY THE

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On Ten Years' Credit at 6 per cent Interest.

Products will pay for the land and improvements much within the limit of this generous credit. Better terms are not offered, and probably never will be. Circulars giving full particulars, gratis; call for all that are wanted to circulate.

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Under the auspices of the

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Mr. Wm. P. Tomlinson, Local Agent, is on the ground, and will give advice and assistance in locating land.

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PURE-BRED FOWLS and Eggs for sale.—Brahmas, Cochins, Houdans, Hamburgs, L. horns, Games, Bantams, Rouen Ducks, and Bronze Turkey. Send for Illustrated Circular and Price-list. Address W. E. STITT, Columbus, Wis.

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EGGS FOR HATCHING—Da Brahma, \$3; Light do., \$2; Plymouth Rock, \$2. C. C. CORBETT, Norwich, Ct.

28th Annual Report

OF THE

NEW YORK

LIFE INSURANCE COMPANY.

OFFICE,

Nos. 346 & 348 Broadway.

JANUARY 1, 1873.

Amount of NET CASH ASSETS, Jan. 1, 1872. \$18,689,747 36

Income.

Premiums and annuities.....	\$6,308,900 62
Interest received and accrued.....	1,206,506 43
	7,515,407 05

Disbursements.

Losses by Death.....	\$1,408,519 87
Dividends and Return Premiums on Canceled Policies.....	2,243,892 07
Life Annuities, Matured, Endowments, and Reinsurance.....	50,606 56
Commissions, Brokerages, and Agency Expenses.....	540,975 93
Advertising and Physicians' Fees.....	111,681 71
Taxes, Office and Law Expenses, Salaries, Printing, Revenue Stamps, etc.....	253,185 49
	4,060,811 65

Assets.

Cash in Trust Co., in Bank, and on hand.....	\$2,242,716 64
Invested in United States, New York State, and other stocks (market value \$1,227,397 83), cost.....	4,140,518 95
Real Estate.....	41,549 00
Bonds and Mortgages (secured by real estate valued at \$26,000,000 00, buildings thereon insured for over \$11,000,000 00, and the policies assigned to the Company as additional collateral security).....	1,768,174 14
Loans on existing policies (the reserve held by the Company on these policies amounts to \$4,069,991 51).....	11,590,584 28
Quarterly and Semi-annual premiums, due subsequent to Jan. 1, 1873.....	986,214 08
Premiums on existing policies in course of transmission and collection (estimated reserve on these policies, \$300,000, included in Liabilities).....	591,485 51
Amounts due from Agents.....	272,484 75
Interest accrued to Jan. 1, 1873.....	29,083 03
	112,159 33
ADD	21,574,812 76
Excess of market value of securities over cost	92,157 38

Cash Assets, Jan. 1, 1873, \$21,667,000 14

APPROPRIATED AS FOLLOWS:

Amount of Adjusted Losses due subsequent to Jan. 1, 1873.....	\$281,542 00
Amount of Reported Losses awaiting proof, etc.....	192,670 00
Amount reserved for Reinsurance on existing policies, insuring \$117,621,538 21, participating in net premium, \$1,000,832 65, net premium, at 5 per cent, Carlelie net premium).....	19,118,926 46
Balance of Return Premium of 1872, payable during the year 1873.....	131,436 70
	20,224,575 22

Divisible Surplus, \$1,642,424 92

From the undivided surplus of \$1,642,424 92 the Board of Trustees has declared a reversionary Dividend, available on settlement of next annual premium, to participating policies proportioned to their Contribution to Surplus. The cash value of such reversion may be used on settlement of premiums, if the policy-holder so elect.

During the year 8,910 Policies have been issued, insuring 27,096,273 61.

TRUSTEES.

MORRIS FRANKLIN...President of the New York Life Insurance Company.
DAVID DOWS....(David Dows & Co., Flour Merchants) 20 South Street.
SAAC C. KENDALL.....(Merchant) 20 South Street.
ANIEL S. MILLER....(Late Dater, Miller & Co., Grocers) corner William and Pine.

(Continued in next column.)

(Continued from preceding column.)

HENRY K. BOGERT....(Bogert & Kneeland) 49 William Street.
JOHN MAIRS.....(Merchant) 20 South Street.
WM. H. APPLETON....(Appleton & Co., Publishers) 519 and 521 Broadway.
ROBERT B. COLLINS....(Collins & Brothers, Stationers) 370 Broadway.
WILLIAM BARTON.....(Banker) 81 Wall Street.
WM. A. BOOTH.....(Booth & Edgar) 100 Wall Street.
GEORGE A. OSGOOD.....(Banker) 85 Broad Street.
HENRY BOWERS.....(Banker) 86 Broad Street.
CHAS. L. ANTHONY.....(Anthony & Hall, Dry Goods) 61 Leonard Street.
SANFORD COBB....President Eagle Fire Insurance Company, 71 Wall Street.
EDWARD MARTIN....(Cragin & Co., Provisions) 400 West Twelfth Street.
EDWIN HOYT....(Hoyt, Spragues & Co., Dry Goods) 100 Franklin Street.
H. B. CLAFIN....(H. B. Clafin & Co., Dry Goods) corner Church and Worth Streets.
J. F. SEYMOUR....(J. F. Seymour & Co.) 78 Warren Street.
CORNELIUS R. BOGERT, M.D.....8 St. Mark's Place.
WILLIAM H. BEERS....Vice-President of the New York Life Insurance Company.

MORRIS FRANKLIN, President.

WILLIAM H. BEERS, Vice-President and Actuary.

THEODORE M. BANTA, Cashier.

D. O'DELL, Superintendent of Agencies.

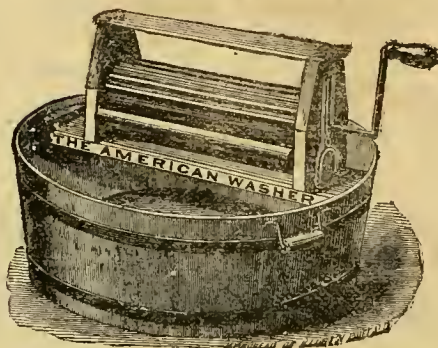
CORNELIUS R. BOGERT, M.D., } Medical Examiners.

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AMERICAN WASHER.

PRICE, \$5.50.



The AMERICAN WASHER is the most perfect, complete, and successful Washer ever offered to the public. For sale by

A. H. FRANCISCUS & CO.,

513 Market St., Philadelphia, Pa.

GEO. WOODS & CO'S ORGANS.

are offered in Elegant New Styles, with important improvements; their already brilliant reputation will be enhanced only by trial of their merits and not by publishing testimonials. Lovers of whatever is refined and progressive in music will be charmed by the beautiful orchestral effects of their

COMBINATION SOLO STOPS,

Purity of Tone, Elegance of Design, and Thorough Construction. CIRCULARS WITH MUSIC FREE. Agents wanted in every Town. Address

GEO. WOODS & CO., Cambridgeport, Mass.

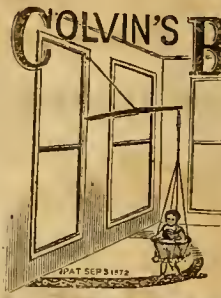


PRICE \$290. You ask WHY we can sell First Class 7 Octave Pianos for \$290? We answer—it costs less than \$300 to make any \$600 Piano sold through Agents, all of whom make 100 per cent. profit. We have no Agents, but ship direct to families at Factory price, and warrant 5 Years. Send for illustrated circular, in which we refer to over 500 Bankers, Merchants, &c. (some of whom you may know), using our Pianos, in 44 States and Territories. U. S. Piano Co., 265 Broadway, N.Y.

A Great Offer for March!!

HORACE WATERS & SON, 481 Broadway, New York, will dispose of 100 PIANOS and ORGANS of first-class makers, including Waters's, at EXTREMELY LOW PRICES FOR CASH THIS MONTH. New 7-octave PIANOS, modern improvements, for \$25 cash. THE WATERS'S CONCERTO PARLOR ORGANS are the most beautiful in style and perfect in tone ever made. Prices at bargains for cash. Monthly installments received, running from one to three years. Illustrated Catalogue mailed.

STENCIL PLATES.—The best method for marking clothing, etc. Plain, same, &c.; Ornamented, &c.—Including Indelible Ink, Brush, etc. Sent free by mail on receipt of price. W. H. BERRY, Portsmouth, N. H.



Colvin Baby Chair Co., 480 Broadway, N. Y.

FIRST Premiums awarded by Amer. Inst., 1870.

MICROSCOPES.

Illustrated Price-List sent free on application.

MAGIC LANTERNS.

Catalogue, priced and illustrated, sent free.

T. H. McALLISTER, Optician, 49 Nassau-st., N. Y.



Sewing Machine

Is the BEST IN THE WORLD.

Agents wanted. Send for Circular. Address

"DOMESTIC" SEWING MACHINE CO., N. Y.

SCIENCE FOR THE PEOPLE

AT POPULAR PRICES. Four American Institute Lectures, complete, with illustrations, on one sheet, for 3 cents. TRIBUNE LECTURE EXTRA, No. 3, now ready. Contains: Brain and Mind, by Prof. B. G. Wilder; Chemical Discoveries of the Spectroscope, by Prof. G. F. Barker; Astronomical Conquests of the Spectroscope, by Prof. C. F. Young; Our Present Knowledge of the Sun, also by Prof. Young; 3 cents per copy, by mail, 5 cents. TRIBUNE LECTURE EXTRA, No. 2 (same price), contains four complete Popular Lectures, and two Mark Twain Letters. TRIBUNE LECTURE EXTRA, No. 1, contains Prof. Tyndall's Six Scientific Lectures on Light, complete, with illustrations; 3 sets, per sheet, by mail 5 cents. Address

NEW YORK TRIBUNE.

Church and Parlor Music.

\$100 cash for Double Reed, six stops, powerful-touted Organs. Warranted the very best.
\$275 cash for 7-octave, Rosewood, carved leg, fully warranted Pianos.

WM. A. POND & CO.,
No. 547 Broadway, New York City.

SEYMOUR'S SHEARS & SCISSORS.

"The Best are the Cheapest."

Extra Quality. Crocus Polish.

Family Size, - - \$1.50
Ladies' Scissors, - - 1.00
By mail, prepaid. Send P. O. Order or Draft.

THE CHRISTIAN GRACES. It is a long time since anything has appeared in religious art so lovely and so exquisite in design and execution as this large and free to every subscriber to

Arthur's Illustrated Home Magazine,

so long a favorite with the people. Price of magazine, with picture, \$3.50 a year, or for 6 months with picture \$1.50. In clubs, 3 copies one year for \$6, 7 copies \$12. Sample numbers 15 cents. Agents wanted everywhere. Large commissions. T. S. ARTHUR & SON, Philadelphia, Pa.

What Next? Wonderful!!

The Great Juvenile Magazine. Only 30 cents a year—168 large pages of choicest reading—a splendid \$1.00 Chromo to every subscriber, by first mail. A marvel of cheapness, worth, and beauty combined! Specimen, 3 cents. Make a club! Say where you saw this.

JOHN B. ALDEN, Publisher, Chicago, Ill.

\$100 to 250 per month guaranteed sure to Agents everywhere selling our new seven-strand WHITE PLATINA CLOTHES-LINES. Sells readily at every house. Samples free. Address the GIBBS WIRE MILLS, Philadelphia, Pa.

AGENTS WANTED

In every town, city, and county, to sell REED'S PATENT IMPROVED WASHING MACHINE. It gives entire satisfaction. PROFITS LARGE. Territory for sale. Send for Circular to REED WASHING MACHINE CO., 67 and 69 Fifth Ave., Pittsburgh, Pa.

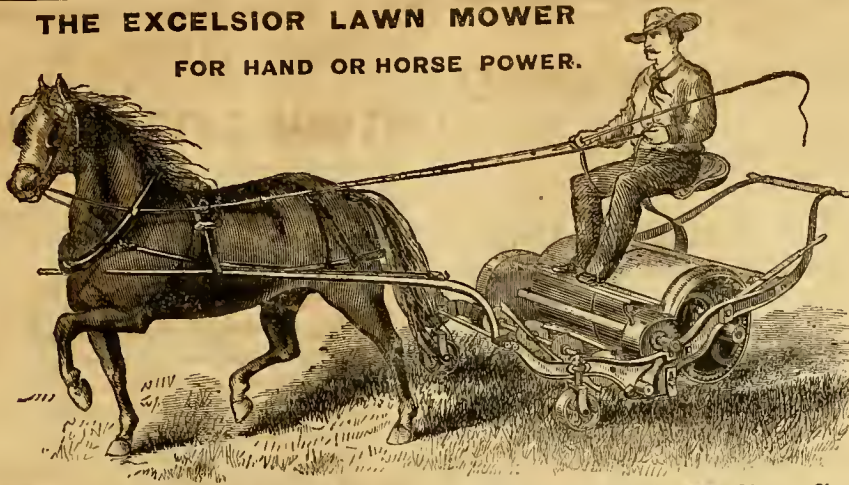
\$1 WORTH FOR 15 CTS. FARMER AND GARDENER, 10 cents in Clubs. Furnishes as much valuable reading matter as many \$1 books. Specimen numbers and premium list sent free.

AGENTS. LOOK!—\$12 a day made selling Scissors Sharpener and other wares. Sample 25 cts. Catalogue free. T. J. HASTINGS & CO., Worcester, Mass.

WANTED, AGENTS to sell household articles needed by everyone. PLUMB & CO., Phila., Pa.

THE EXCELSIOR LAWN MOWER

FOR HAND OR HORSE POWER.



Manufactured by **Chadborn & Coldwell M'f'g Co.,**
(Send for Circular.) **NEWBURCH, N. Y.**

BUILDING PAPER!

For Sheathing, Roofing, Deafening, Carpet Lining, and as a substitute for Plastering. Send for Samples and Circulars, to B. E. HALE & Co., 55 & 53 Park Place, N. Y., or LOCK RIVER PAPER CO., Chicago.

WRITES 10 HOURS

THE HOLDER CONTAINS THE INK 350 & 400

The original and only Manf. of this style of Pen.

Hawkes' Patent Fountain Pen-Holder, fits any pen, saves 1-3 time. \$2, \$2.50. Gold pens, gold, rubber and pearl charm pencils. Pens repaired, 50c. By mail. Send stamp for circulars. GEO. F. HAWKES, 66 Nassau St., N. Y.

FARMERS, BE SURE AND EX-
AMINE the superior Hay Spreader; it is the cheapest, most complete, and most durable Hay Tedder ever put into the field. Read a few of the comments received. Send for circular and description to
HIGGANUM M'F'G CO., Higganum, Ct.

50,000 VILLAGERS AND FARMERS

Need the Placet Combined Garden Drill, Wheel Hoe, Plow, and Subsoiler; three other styles for seed planting, sowing, and fertilizing, and double-quick hand-hoeing. Circulars of
S. L. ALLEN & CO., 119 S. 4th St., Philadelphia, Pa.

TWO GOLD MEDALS

"BEST EVER MADE"

Harder's Premium Railway Horse Power and Thresher and Cleaner, received, THE FIRST PRIZE

At Great National Trial, at Auburn, N. Y.

For "Slow and easy movement of horses, 15 rods less than 1 1/2 miles per hour, Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, etc." as shown by official Report of Judges, Threshers, Separators, Fencing Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address
MIRARD HARDER,
Cobleskill, Schoharie Co., N. Y.

AWARDED THIS MACHINE

21 COLUMBIA ST., NEW YORK.
J. S. UNDERHILL, Esq., Locust Valley, L. I.

DEAR SIR: After seeing the trash called pumps that we saw to-day confirms me in what I had often thought I should do: Make a good common well-pump. So, if you see fit to wait about three or four weeks, I will put up the first in your well or cistern, give you a year or two years to make up your mind whether it suits you, and then if you want it, the price will be what I am at the time charging others for them, somewhere between \$20 and \$30.

Yours truly,
February 5th, 1873. **RICHARD DUDGEON.**

Self-Propel-For Cripples

For In and

Can be EASILY one having the State your case, for illustrated circulars and prices. Please mention this paper.



ling Chairs and Invalids
Out-Door Use,
propelled by any use of hands,
and send stamp circular of different
S. A. SMITH,
90 William St.,
N. Y. City.



SAVE YOUR CHILD'S EYESIGHT:
by the Novelty Patent Canopy-Gradle and Carriage combined with Patent Adjustable Parasol. Adopted by Central Park Commissioners, and recommended by the Medical Faculty.

Send stamp for circular to
LEWIS P. TIBBALS,
512 Broadway, New York.



BUILDING FELT.

This water-proof material, resembling fine leather, is for outside work (no tar substances used) and inside, instead of plaster. Felt carpetings, etc. Send two stamps for circular and samples.

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NUTRINA,

Made from choice roasted wheat. It will cure Dyspepsia and Constipation, and regulate Digestion. It will keep fresh and sweet any length of time, and cook in less time than ordinary cracked wheat. Sold by Grocers. Sample package sent free on receipt of 15 cents.

Manufactured only by the

NUTRIO MANUFACTURING CO.,
1520 S. 9th St., Philadelphia.

RIZENA.

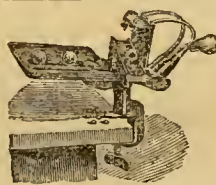
(THE STARCH OF RICE.)

For dessert purposes without equal. For invalids especially fitted—strengthening yet not fevering as other hearty food.

DAN TALMAGE'S SONS,

Rice Merchants, etc.,

110 WATER STREET, NEW YORK.



The Family Cherry-Stoner.

The only practical Cherry-Stoner made.

It leaves the fruit plump and round, with its juices preserved. Sold in all large markets. Send stamp for circular.

D. H. GOODELL,

Sole Manufacturer,
55 Chambers St., New York.

Works at Antrim, N. H.

Factor of Lightning and Turn-Table Apple-Parers, Lightning Peach-Parers, and Climax Apple-Corer and Slicer.

JOSEPH GILLOTT'S
STEEL PENS,
OF THE OLD STANDARD QUALITY.

The well-known Original and Popular Nos.,

303.....404.....170.....351,
having been assumed by other makers, we desire to caution the public in respect to said imitations. **ASK FOR GILLOTT'S.**

JOS. GILLOTT & SONS,
21 John Street, New York.

SEE in another column advertisement about Iowa and Nebraska Lands.

CHEAP CORN CULTURE.

Thomas's Smoothing Harrow
And Broadcast Weeder.

69, 81, 108

Round Slanting Teeth of Tempered Steel.
9 & 12 ft. spread. Price, \$25 to \$35.

Owing to the direction of the teeth, the corn—being strongly rooted—is not injured by the passage of the harrow broadcast over it, while the tender surface weeds are thoroughly destroyed.

Over 200,000 acres were successfully cultivated last year by its use.

It is in addition the best pulverizer of the soil ever used, as the teeth never clog with weeds or adhesive earth, and has been used with gratifying success in nearly every State in the Union.

For full particulars send for Illustrated Catalogue. For sale in every leading town and village in the United States.
J. J. THOMAS & CO., Geneva, N. Y.

CARRIART'S

Patent Two-Horse
PULVERIZING CULTIVATOR.

Is superior to the best Wheel Cultivators. It can be adjusted to any depth required without the use of wheels.

The draft is reduced nearly one half.

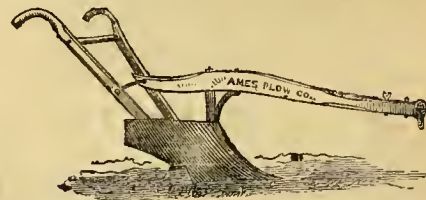
The price is only Twenty-two Dollars.

It pulverizes the ground thoroughly, and can be used for more purposes than any other implement on the farm.

BRADLEY MAN'G CO., Syracuse, N. Y.

SESSIONS & KNOX'S

Patent Hard-Steel Plows



EMBODIED in their shape the scientific adaptation of natural lines embraced by KNOX'S PATENT, and have extra qualities of hardness, each piece of metal being made by a process that converts about one third on each side into steel, and allows it to be hardened as much as fire and water can make it, while the center remains soft or flexible. This gives them a toughness that avoids the liability of breakage so general with other plows, and a surface better adapted to slide through the soil, which reduces the amount of power required, and further adds to durability.

Messrs. SESSIONS & KNOX were awarded the HIGHEST PRIZE by the New York State Agricultural Society, October, 1871.

Awarded the highest Prize, a SILVER MEDAL, by the New England Agricultural Society, September, 1871.

MADE ONLY BY

AMES PLOW COMPANY.

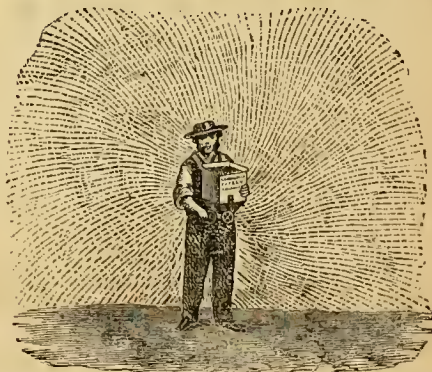
WAREHOUSES,

53 BEEKMAN ST., NEW YORK, and

QUINCY HALL, BOSTON.

Send for Descriptive Circular.

Cahoon's Broadcast Seed-Sower.



FOR SOWING ALL KINDS OF GRAIN AND GRASS SEED.

It does the work of five men. Joseph Harris, author of "Walks and Talks" in *American Agriculturist*, says: "I like the Cahoon Seed-Sower very much indeed. My man sowed 18 acres of grass-seed with it in six hours." For sale by agents in all parts of the country.

Price \$10. Send stamp for circular.

D. H. GOODELL, Sole Manufacturer, Antrim, N. H.

Bradley's American Harvester

We warrant it to cut any grain that grows, and in any condition.

It will do better work, is more durable, and is in every respect superior to our former manufacture of the celebrated Johnson "Sweepstakes" Reaper.

Don't buy any other until you have seen it.

For particulars, address

BRADLEY MAN'G CO., Syracuse, N. Y.

Boston Market Vegetables.

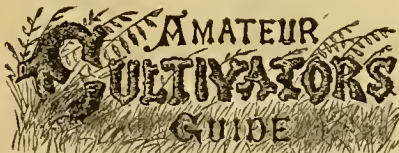
BEST AND CHEAPEST.



We wish to call attention to our facilities for furnishing the choicest of garden seeds, being in the midst of the most successful market-gardens in the country, who are famous not only in Boston, but in New York and Philadelphia, where the supply of the finest forced vegetables are sent, such as White Spine Cucumber, Lettuces, and Radishes, etc. Some of our market-gardeners have spent from 15 to 20 years in perfecting particular kinds of vegetables, and only intend to grow seeds for their own use, but sometimes have a small surplus. We make it a point to secure that surplus without regard to cost, and can offer a few kinds by the packet only. We have had the pleasure of introducing the Gen. Grant Tomato, Moore's Early Concord Corn, and the Lungrow Squash, which have proved decided acquisitions. We offer the following specialties:

	Per Pkt.
Cauliflower, Boston Market.....	25c.
Celery, Sandringham Dwarf White.....	25c.
Cucumber, Gen. Grant.....	25c.
" Boston Market White Spine, Selected.....	25c.
Lettuce, 3 best varieties, each.....	25c.
Melon, Water, Persian.....	25c.
" Musk, 2 best varieties, each.....	15c.
Onion, Neapolitan, 5 splendid varieties, each.....	15c.
" The Queen.....	25c.
Peas, 12 new varieties, each.....	25c.
Squash, Marblehead.....	25c.
" Moore's Vegetable Cream.....	25c.
Tomato, Arlington.....	25c.
" Gen. Grant.....	10c.

All will be found fully described in the



To the Flower and Kitchen Garden.

27th Edition now ready, enlarged and improved, and containing a magnificent New Colored Group of Flowers, besides hundreds of engravings, descriptive price-list of 3,000 varieties of choice Flower and Vegetable Seeds, Rare Gladioli, Lilies, Tuberoses, etc., with full directions for their culture. The most perfect work of the kind before the public. Sent Free upon receipt of two stamps. Address

WASHBURN & CO., Boston, Mass.

WHAT---WHERE ---WHEN---HOW

To Plant Farm, Garden, and Flower Seeds; what they will cost, and other desirable information in our

HAND-BOOK for 1873.

Containing a Beautifully Colored Chromo.

Sent to all applicants, post-paid, on receipt of 10 cents, by
JAMES FLEMING, Seedsman,
67 Nassau St., New York.

THORBURN'S FLOWER SEEDS.

Our annual descriptive Catalogue of Flower Seeds, containing all the Novelties, also Hybrid Gladioli and Spring Bulbs, is now ready for mailing free to applicants; also, Tree Seed Catalogue.

J. M. THORBURN & CO.,
15 John Street, New York.

TREES! VINES! SHRUBS!

At Greatly Reduced Prices.
Am. Arbor-vita, "Walter" Grape, and Downing Gooseberry-specialties. Send stamp for Circular. Please state in what paper you saw this advertisement.

L. M. FERRIS & SON,
Dutchess Nurseries, Poughkeepsie, N. Y.

HARDY SHRUBBERY by MAIL.

Any five of the following by mail, post-paid, on receipt of \$1: Dentzia crenata and gracilis; Forsythia; Spiraea Reevesii, double and single; Spiraea prunifolia; Weigela rosea; Climbers; Variegated Japan Honey-suckle; Woodbine; Jasminum officinale. Catalogue of Roses and Greenhouse Plants free on application. Address
JOSEPH T. PHILLIPS, West Grove, Chester Co., Pa.

Seedlings for Sale.

100,000 Apple, 2 years, fine, \$1 per 1,000.
100,000 Apple, 1 year, \$2.50 per 1,000.
500,000 Elm, 1 year, 6 to 18 in., \$4 per 1,000.
10,000 Sugar Maple, 3 years, 18 to 36 in., \$12 per 1,000.
50,000 " 1 year, \$2.50 per 1,000.
10,000 Norway Maple, 1 and 2 years, \$5 per 1,000.
5,000 Hemlock, 2 to 5 feet, fine.

J. A. LEWIS, Williamantic, Ct.

ALL BEST SORTS.

Small-Fruit Plants—Pure. Lowest rates. Prices sent free.
JOHN S. COLLINS, Moorestown, N. J.

SEE in another column advertisement about Iowa and Nebraska Lands.

EXTRAORDINARY NOVELTY!!

NEW JAPAN PRIMROSE!

The Greatest Acquisition of the Day.
Perfectly hardy in England. So pleased were we with a few Plants which flowered with us last season, that we at once engaged a large stock from Europe—and we are enabled to offer them at \$1 each, by Mail, Post-paid. Orders received here, to be filled in rotation after April list. Prices to the Trade on application. Send for Catalogues. Address

Established 1840.
ELLWANGER & BARRY,
Mount Hope Nurseries, ROCHESTER, N. Y.

Wolf Creek Nursery.

Price of Apple and other Trees too long to publish.

EARLY ROSE POTATOES.

Egyptian Joint Pop-Corn. 40c. per lb.; 4 lbs., \$1, by mail. Price-list free.
JOHN WAMPLER,
Trotwood, Montgomery Co., Ohio.

LANE'S IMPROVED IMPERIAL SUGAR BEET.—The best Beet to raise for stock. From 30 to 40 tons have been raised to the acre, at a cost of from 5 to 8 cents per bushel. (My stock seed was purchased of Mr. Lane.) Seed sent by mail and warranted to reach the purchaser, at \$1.25 per lb.; 1/2 lb., 70c.; 1/4 lb., 40c.; 1 oz., 15c. Address
DAVID R. WOOD, Morrisville, Lamoille County, Vt.

10 CHOICE FLOWERING PLANTS,

by mail, for \$1. Satisfaction guaranteed.

Circulars free. Address
H. A. CATLIN, Florist, Corry, Pa.

HARRINGTON'S PATENT.

The only combined Seed Sower and Cultivator.
Made only by
AMES PLOW CO.,
53 Beekman
St. New York.



AFTER ONE DAY'S USE of the
A SUPERIOR HAY SPREADER no farmer
will ever part with it.

WARREN HOE.



20,000 sold last year. Upwards of 50,000 sold for 1873. Show this to your merchant; ask him to let you try one. You will not part with it for twice its cost. Made only by PETERS BROTHERS' MANUFACTURING CO., Marshall, Mich.

TWO MILLION Forest Trees and Seedlings. Tulip, Linden, Magnolia, W. Ash, Am. Chestnut, Sugar Maple. Trees only \$6 per 1,000; Seedlings very low. Sample 100, prepaid, 50c. Catalogue free. Address
J. JENKINS, Box 45, Winona, Col. Co., Ohio.

MOELLER & DAILEY, Landscape Gardeners

Will furnish Plans and Drawings in this line at the shortest notice. Also superintend the work if desired. Best of reference given.
Address
MOELLER & DAILEY,
176 Broadway, N. Y., Room 58.

HUTCHINSON'S

UNRIVALED BURNER

Avoids the trouble and cost of chimneys. The safest and most perfect burner of petroleum. Fits the common-size lamps. Too handy to be without. Sent by mail for sixty cents. Two for one dollar. Wicks included. Send orders to
HUTCHINSON & CO., Cayuga, N. Y.

FOR SALE, OR WILL LEASE

for a term of years. Rare chance for a Florist with small capital. The undersigned will sell out his Greenhouses, and give possession at any time. They are well-established, and doing a good trade. There are three houses 70 ft. long, with 300 ft. of hot-bed, etc., well stocked with plants, utensils, etc., in good order. Best stand in the city for the business. Having other business which demands my whole attention, will sell at a bargain. Address
S. A. CASE, Schenectady, N. Y.

FARMER WANTED.—A tenant for a farm of 500 acres in Dutchess Co., N. Y. One who understands the city milk business, can furnish everything except half the cows, has plenty of help to conduct the business thoroughly, and bears a good character as a farmer and a man. Long lease given if desired. Address, in own handwriting, "OWNEK, Box 4482, New York Post-Office."

WANTED—to work a farm on shares—a thorough practical farmer and his wife; also an unmarried farmer by the month. Address
M. HAZARD, P. O. Box 2959, New York.

STAR EARTH-CLOSET.—The most perfect of any Closet in the market. Call and examine at our Manufactory, 126th St. and 7th Ave., or at our Office, 21 Cortlandt St., N. Y. STAR EARTH-CLOSET CO.

100 YEAR ALMANAC. FOR 50 CENTS we send, POST-PAID, an Almanac giving every Year, Month, Week, and Day of the Century; also a Pocket Calendar for 1873. Extra inducements to Agents. Address
GEORGE A. HEARD & CO., Boston, Mass.

Farmers, Dairymen, and Butter-Buyers!

PACK YOUR BUTTER IN

WESTCOTT'S RETURN BUTTER-PAIL.

Approved and recommended by the leading authorities of our country on dairying, and acknowledged by all butter-dealers to be the very best package in use.
Butter packed in this Pail brings 5 to 10 cents more a pound in the New York City market than the same quality in any other package.



Dairymen, send for a Circular! Dealers, send for a Price-list! We are the sole manufacturers of Westcott's Return Butter-Pail, and also manufacture very extensively Butter-Firkins, Half-Firkin Tubs, 25-pound Butter-Pails, Well-Buckets, etc., etc. Our goods are marked with our name, and are for sale by all first-class dealers.

SILSBY BROS.,

Belmont, Alleghany Co., N. Y.

Principal Warehouse, Binghamton, N. Y.

For Sale at a Bargain,

A TRUCK FARM,

NEAR

New York City.

Within eight miles of the New York City ferries, a farm of 31 ACRES, with new, well-built, and finished dwelling (two-story and attic), and a good, new barn. Good soil, on an elevated location, and peculiarly well adapted for TRUCK GARDENING or Small Fruit, which, from the easy access to the New York markets, can be made very profitable. A good truck-farmer can make the farm pay for itself in a very few years. New railroad facilities, opened and in progress, will make the land increase very rapidly in value. Trains to and from New York nearly every half-hour, from 5 1/2 A.M. to midnight, run to depots, within 10 to 15 minutes' drive from this farm. The owner is in other business, and can not give attention to the farm, and will sell it at a good bargain.

Terms, \$4,000 to \$6,000 cash, more or less; the balance in easy payments. Price, \$11,000.
Inquire of
S. F. GOODING, Flushing, N. Y.

WE WOULD NOT SELL OUR
SUPERIOR HAY SPREADER for five
times its cost if we could not obtain another.

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By JOSEPH J. WHITE.

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The endeavor has been to make this work as comprehensive as possible; and it is believed that it will prove an efficient guide to all who may have cause to consult its pages.
ORANGE JUDD & CO., 245 Broadway, New York.

About the Chromos.

In order to answer many inquiries, we give below in detail the single subscription rates of both of our papers, and the amount of money needed to secure the Chromos mounted. The terms for the Chromos, with clubs, are the same with each subscriber as in single subscriptions. We advise all to have the Chromos mounted here, as we can have this done much cheaper than it could be done singly, and better than it could usually be done elsewhere. The offer of Chromos is to subscribers for the whole of 1873.

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ORANGE JUDD & COMPANY,
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About Money Sent.

A WORD TO OUR SUBSCRIBERS.

If our friends who are now loading the mail-bags with their favors to us, could know how much our labors would be lessened by a little care on their part, we are sure they would gladly exercise it. In sending money to us, please specify how it is to be applied, in form as given below, the amounts of course to be varied according to circumstances; for example:

Whole amount of money sent.....	\$19 25
For three subscribers to <i>American Agriculturist</i> for 1873, at \$1.50 each.....	\$ 4 50
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“ four <i>H. and H. Chromos</i> , mounted and sent prepaid, 50 cents each.....	2 00
	\$19 25

Below this statement or table give plainly the name and address—

1st, Of *American Agriculturist* subscribers, and
2d, Of *HEARTH AND HOME* subscribers, putting each subscriber's name and address on a separate line.

We shall be grateful to all correspondents who will kindly follow these suggestions.

ORANGE JUDD & COMPANY,
245 BROADWAY, NEW YORK.

BACK VOLUMES OF American Agriculturist, AND OF Hearth and Home.

The publishers of the *American Agriculturist* can supply any of the back volumes of that paper from the Sixteenth to the Thirty-first. These volumes contain more varied and interesting information on all matters pertaining to the Farm, Garden, and Household, than can be obtained in books costing three times as much money. Price of each bound volume, at the Office, \$2.00; sent post-paid, \$2.50.

The publishers can also supply the back volumes of their finely illustrated Weekly Journal, *Hearth and Home*, for the years 1869, '70, '71, and '72. These volumes are neatly and uniformly bound in cloth, with title in gilt on back and side. With their beautiful engravings, and abundance of useful and entertaining reading, they will prove valuable additions to any library. Price of each bound volume, at the Office, \$4.00; if sent by express, the purchaser will pay express charges.

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ANY ONE can, with but little time and trouble, collect a small or large club of subscribers, for either *American Agriculturist* or *Hearth and Home*, or both, and receive therefor one of the very excellent articles in the Premium List given in the adjoining table. Over 14,000 persons have secured one or more of them, and they have almost universally given great satisfaction to those receiving them. In making up premium lists you can promise every subscriber for 1873, **A Beautiful Picture worth many times the Subscription Price.** (See particulars about the Pictures elsewhere in this paper.)

The *American Agriculturist* is everywhere known and approved. *HEARTH AND HOME* is now without a superior in the world as a splendidly illustrated Weekly Newspaper, for real value, cheapness, and adaptability to every home in America. The papers are entirely different. Taken together, they supply over \$25,000 worth of fine engravings, and more good reading than can be found in fifty books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of one and partly of the other, as noted over the Table. We call **especial attention** to the last column of figures, showing the small number of names required where both papers are taken, at the reduced price of \$4 a year.

You, Reader, can get a Premium. TRY IT.

Explanatory Notes.

N. B.

Read and carefully

Note the following items:

(a) All subscribers sent by one person count, though from one or a dozen different Post-offices. But.... (b) Tell us with each name or list of names sent, that it is for a premium....

(c) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from now until July 1st, to fill up your list.... (d) Send the exact money with each list of names, so that there may be no confusion of money accounts.... (e) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers....

(f) Specimen Numbers, Cards and Circulars will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly.... (g) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk; otherwise it is not.

(In the following table is given the price of each article, and the number of subscribers required to get it free, at the regular rates, \$1.50 a year for *American Agriculturist*, and \$3.00 a year for *Hearth and Home*; also at the club rates of \$1 and \$2.50; also at the rates of \$4 a year for both papers together.] **Descriptions of Premiums will be sent free to applicants.**

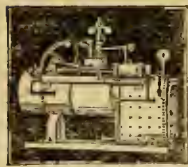
N. B.—In all Premium Clubs for either paper, TWO copies of *American Agriculturist* (English or German) at \$1.50 each, and ONE copy of *Hearth and Home* at \$3.00, will count exactly the same. So also two copies of *American Agriculturist* at \$1 each, and one copy of *Hearth and Home* at \$2.50, will count exactly the same. In this way Premium Clubs can be made up from the 2d and 4th columns, or from the 3d and 5th, or wholly from the 6th column.

		(1)	(2)	(3)	(4)	(5)	(6)
		American Agriculturist only.		Hearth and Home only.		Both Papers together.	
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		For American Agriculturist, and for Hearth and Home, for the Year 1873.					
		Open to all—No Competition.					
		Table of Premiums and Terms,					
		No. Names of Premium Articles.					
1	Knives and Forks (Patterson Bros.)	\$15 00	92	75	11	38	13
2	Knives and Forks (do. do.)	\$20 00	30	102	15	51	17
3	Carver and Fork (do. do.)	\$5 50	14	40	8	20	8
4	French Cook's Knife, Fork, and Steel	\$4 25	10	34	6	17	7
5	Pocket Knife (Meriden Cutlery Co.)	\$1 50	4	13	3	5	3
6	Pocket Knife (do. do.)	\$2 00	6	22	4	11	4
7	Pocket Knife (do. do.)	\$2 75	7	27	5	14	4
8	Ladies' Pocket Knife (do. do.)	\$6 00	15	45	8	28	9
9	Multum in Parvo Knife (do. do.)	\$5 50	8	30	5	15	6
10	Cake Basket (Lucius Hart Man'g Co.)	\$12 00	19	65	10	33	11
11	Revolving Butter Cooler (do. do.)	\$8 00	16	52	8	28	9
12	Card Receiver (do. do.)	\$7 00	16	49	8	28	9
13	Nut-picks and Crackers (do. do.)	\$12 00	19	65	10	33	11
14	Half-Dozen Napkin Rings (do. do.)	\$8 00	16	52	8	28	9
15	One Dozen Teaspoons (do. do.)	\$6 00	15	45	8	28	9
16	One Dozen Tablespoons (do. do.)	\$12 00	19	65	10	33	11
17	One Dozen Table Forks (do. do.)	\$12 00	19	65	10	33	11
18	Child's Cup (do. do.)	\$2 75	7	27	4	14	5
19	Gold Pen, Sil. Case (George F. Hawkes)	\$3 25	8	30	5	15	6
20	Gold Pen and Silver Case (do. do.)	\$8 00	12	37	7	19	8
21	Gold Pen, Handle gold-tipped (do. do.)	\$8 00	15	45	8	28	9
22	Ladies' Gold Pen and Fobber Case (do. do.)	\$8 00	15	45	8	28	9
23	Piragon Pat. Revolving Pencil (do.)	\$1 50	4	13	3	5	3
24	Piragon Pat. Revolving Pencil (do.)	\$3 00	8	30	5	15	6
25	Payson's Indelible Ink.....	75	3	10	2	4	2
26	Moore's Floral Set (Moore Man'g Co.)	\$1 00	3	10	2	4	2
27	Steam Engine.....	\$1 00	3	10	2	4	2
28	Garden Seeds & Flower Tubulose (do.)	\$2 00	8	22	4	11	4
29	Grain Machine (Granger & Baker)	\$55 00	60	210	30	120	33
30	Sewing Machine (Florence).....	\$65 00	74	255	37	145	45
31	Sewing Machine (Willcox & Gibbs).....	\$55 00	60	210	30	120	33
32	Beckwith Sewing Machine, Improved.....	\$42 00	16	52	8	28	9
33	Bickford Family Knitting Machine.....	\$25 00	83	120	20	67	21
34	Washing Machine (Doty's).....	\$15 00	22	75	9	33	13
35	Clothes Wringer (Best—Tubulose).....	\$9 00	15	45	8	28	9
36	Melodeon, S. Octave (G. A. Prince & Co.)	\$67 00	78	295	39	158	49
37	Melodeon, S. Octave (do. do.)	\$112 00	128	409	60	240	76
38	Piano, Splendid 7-Oct. (Steinway & Sons)	\$650 00	625	1600	313	815	344
39	Silver Watch (American Watch Co.)	\$40 00	50	165	29	85	32
40	Ladies' Fine Gold Watch (do. do.)	\$10 00	110	350	55	175	61
41	Boy's Gold Watch, Pocket (do. do.)	\$10 00	24	80	12	40	14
42	Double-barrel Gun (Cooper, Harris & H.)	\$70 00	46	150	25	75	26
43	Charles Pratt's Astral Oil (Can. 5 Gal.)	\$3 75	9	32	6	16	7
44	Hand Cultivator & Weeder (Comstock)	\$9 00	17	54	9	29	10
45	American Submerged Pump.....	\$15 00	22	75	11	38	13
46	Family Scales (Fairbanks & Co.)	\$14 00	21	70	11	35	13
47	Build-a-Block (Crandall).....	\$2 00	5	20	3	10	4
48	Boy's Own Boat (Works by Steam)	\$2 50	6	22	4	11	4
49	Worchester's Great Illustrated Dictionary	\$10 00	18	58	9	29	10
50	Any back Volume <i>Agriculturist</i>	\$1 75	20	66	10	34	12
51	Any Two Back Volumes do.	\$3 50	29	95	15	49	18
52	Any Three do. do. do.	\$5 25	13	57	7	19	8
53	Any Four do. do. do.	\$7 00	15	47	8	24	9
54	Any Five do. do. do.	\$8 75	17	54	9	27	10
55	Any Six do. do. do.	\$10 50	19	61	10	32	11
56	Any Seven do. do. do.	\$12 25	21	68	11	37	13
57	Any Eight do. do. do.	\$14 00	23	74	12	37	14
		(Each add'l Vol. at same rate.)					
58	Sixteen Vols. XVI to XXXI.	\$23 00	58	128	19	62	21
59	Any Back Vol. <i>Agriculturist</i>	\$2 50	21	70	10	35	12
60	Any Two Back Volumes do.	\$5 00	30	98	15	49	18
61	Any Three do. do. do.	\$7 50	16	48	8	24	9
62	Any Four do. do. do.	\$10 00	18	60	9	30	10
63	Any Five do. do. do.	\$12 50	21	71	11	36	12
64	Any Six do. do. do.	\$15 00	24	82	12	41	14
65	Any Seven do. do. do.	\$17 50	27	92	14	46	16
66	Any Eight do. do. do.	\$20 00	30	102	15	51	17
67	Any Nine do. do. do.	\$22 50	33	110	17	55	18
		(Each add'l Volume at same rate.)					
68	Sixteen Vols. XVI to XXXI.	\$40 00	54	160	27	80	30
69	Farmer's Boy's Library.....	\$5 00	12	33	6	17	7
70	Farmer's Boy's Library.....	\$8 25	16	52	8	26	9
71	Farmer's Boy's Library.....	\$11 25	20	65	10	32	11
72	Farmer's Boy's Library.....	\$15 75	25	83	13	42	15
73	Farmer's Boy's Library.....	\$20 00	30	102	15	51	17
74	Any Back Vol. <i>Hearth & Home</i> (Bound)	\$4 00	9	32	5	16	6
75	Any Two Back Vols. do. do.	\$8 00	16	50	8	25	9
		(Each additional Volume at same rate.)					
76	A \$10 Library (Four Choice)	\$10 00	18	58	9	29	10
77	A \$15 Library do.	\$15 00	24	85	12	43	14
78	A \$20 Library do.	\$20 00	31	106	16	53	18
79	A \$25 Library do.	\$25 00	38	125	19	63	21
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82	A \$40 Library do.	\$40 00	56	177	27	89	31
83	A \$45 Library do.	\$45 00	62	192	31	96	34
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Every Premium article is new and of the very best manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums, Nos. 5 to 9, 19 to 25, 28, 50 to 73, and 76 to 88 inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest the recipient), to any place in the United States or Territories.—(No. 27 mailed for 30 cents extra.) The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. Descriptive List of Premiums sent free to applicants.

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Power Required.	Width of Cut.	Weight.
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" 1, One Man,	" 15 " 61 "	
" 2, Jr. One Man,	" 16 " 42 "	
" 2, One or Two Men,	" 20 " 72 "	
" 2½, A light Horse (Draft Pole)	" 30 " 215 "	
" 3, " (Driver's Seat and	" 30 " 315 "	
Shafts),		

We recommend our 14-inch and 16-inch Machines as being
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other manufacturers, and on this account they are much
easier worked, are stronger and more durable, and do their
work in the most perfect manner.

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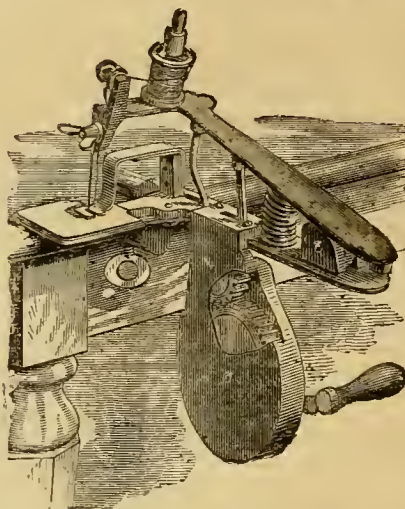
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N. H. BALDWIN, Leconia, N. H.

See Advertisement of American Fruit-Drier,
page 113 in this number.

THE BECKWITH SEWING-MACHINE IMPROVED.

PRICE, \$12.

With New Braiding-Foot and other
Valuable Improvements.



We have been offering as a Premium, for a year past,
the

Beckwith Sewing-Machine,

which was fully described in the *American Agriculturist*
for March and April, 1872. We have already given and
sold some hundreds of these machines, and testimonials
of satisfaction have come from every quarter.

We now offer the **Beckwith Sewing-Ma-
chine, Improved**, price \$12. A new and very
simple braiding-foot has been made, by which a child can
sew on braid without the least trouble, following any de-
sired pattern with ease; also a new arm, spiral spring
and lever for raising the presser-foot, all of which are
now set in a position that leaves the needle free to be
threaded. The joint is much enlarged, and the machine
is otherwise greatly strengthened and improved. The
use of the braider-foot alone will be valued more than
the cost of the machine. This, with the other improve-
ments, is considered so important, that the Beckwith
Sewing-Machine Company will make no more of the \$10
style. The improved machine is japanned and tastefully
ornamented with gold; cloth-plate and trimmings are
plated.

Read what the People Say.

Hundreds of letters have been received by us and by the
Beckwith Sewing Machine Co., extracts from a few of which
are given below. They were most of them written with
reference to the \$10 Machine, but are appropriate to the
Improved Machine, as that comprises all the excellencies
of the former, with the additions already noted.

HAMILTON, LOUDOUN CO., VA.

GENTLEMEN: Please send me your terms to agents for the
Beckwith Sewing Machine. We are much pleased with
ours. I would like to have the agency of this county, if
terms are satisfactory.

Very respectfully, WM. H. BALL.

WASHINGTON, D. C., March, 1872.

GENTLEMEN: Received the machine and letter sent by
you on the 8th inst. After an examination and trial of the
former, sewing with it nearly the whole of several gar-
ments, including one of cloth, I can say that it gives entire
satisfaction. Very respectfully yours, etc.,

H. L. CLARK.

BUNSWICK, MAINE, March, 1872.

GENTLEMEN: Your machine was received in good order,
and I think very highly of it, and they will find a ready sale.
Should be very happy to take the agency or buy machines
of you to sell again. Yours truly,

B. L. DENNISON.

WEST CHESTER, August 15th, 1872.

GENTLEMEN: In answer to inquiry about Beckwith Sew-

ing Machine, I can say that it has proved satisfactory. Our
physician having forbidden a treadle machine to come into
the house, for fear of my wife, who is in delicate health, being
tempted to use it, I was induced to order a Beckwith. My
wife, besides making up female wear of different materials,
recently finished for me, in a most workmanlike manner, on
the Beckwith, a whole suit, coat, vest, and pants, of French
hahit-cloth, which is equal, if not superior, to any I have
had made in your city or elsewhere. It, like all other
machines, requires some common-sense application, and a
little patience, until one fully understands it, and then there
is little or no trouble. My wife, without any other guide
than a careful observation of the rules contained in the lid
of the box, has been able to run it successfully. We value
it highly. W. P. TOWNSEND.

LOOKOUT, W. TENN., August 3d, 1872.

GENTLEMEN: We received the Beckwith Machine safely
the evening of August 1st, and, as this is probably the high-
est testimonial you will ever receive, we have duly felt the
responsibility of writing to you how the little wonder works
"above the clouds." We have taken two days to test its
powers, and are most agreeably surprised. We expected
nothing half so small, so pretty, or so useful.

Your friend, MARY J. CHAPMAN.

LUDLOW, MASS., August 26th, 1872.

GENTLEMEN: I received your machine in good order, and
after using it four months, trying it on all goods, I can say
that it far exceeds my expectation. To say that I am well
pleased with it would be but saying little. I am satisfied.

Yours truly, Mrs. A. L. BENNETT.

WELBORN, FLA., September 20th, 1872.

GENTLEMEN: The sewing-machine came safely to hand,
and on trial I find it complete. My wife says it is the dearest
little machine that ever was made, and she would rather
sew on it than to eat—would not take \$50 for it if she could
not get another.

Respectfully yours, W. CLAY MALLORY.

DEFIANCE, OHIO, September 7th, 1872.

Sir: We received your letter and machine in good time.
We are perfectly satisfied. They will give universal satis-
faction. I am a German; I landed in New York in 1832;
been in Defiance County sixteen years.

Yours respectfully, JOHN HEILSHORN.

MANSFIELD, TIOGA CO., PA., September 27th, 1872.

GENTLEMEN: Your machine is the most perfect piece of
simplicity that I ever saw, and ours works, as those say who
run it, "splendidly." Yours truly,

JOHN H. PUTNAM.

FREMONT, DODGE CO., NEB., September 21st, 1872.

GENTLEMEN: I received the Beckwith Sewing Ma-
chine August 17th, since which time I have sewed gar-
ments from a French lawn to a cloth, and it gives entire
satisfaction.

Respectfully, ANNA C. WATT.

CHURCHILL, KAN., Dec. 23th, 1872.

MESSES. ORANGE JUDD & Co.: I wrote you the other day
inquiring for a Beckwith Sewing Machine which was to be
sent to me. Since then, I have received it in good order,
and my wife is more than pleased with its performance.

Yours truly, THOS. B. SEARS, P.M.

We have contracted with the Beckwith Sewing Machine
Company for a large number of them to supply our own
friends, and as **Premiums**. Each machine is put
in a neat, compact box, with **hammer and guide, oil-can
with oil, thread, different-sized needles, etc.**, with full
Printed Directions for using, and delivered to any express
office in this city, without extra charge above the \$12.
As we buy the machines at wholesale price, we have de-
cided to give our readers some advantage of this, and we
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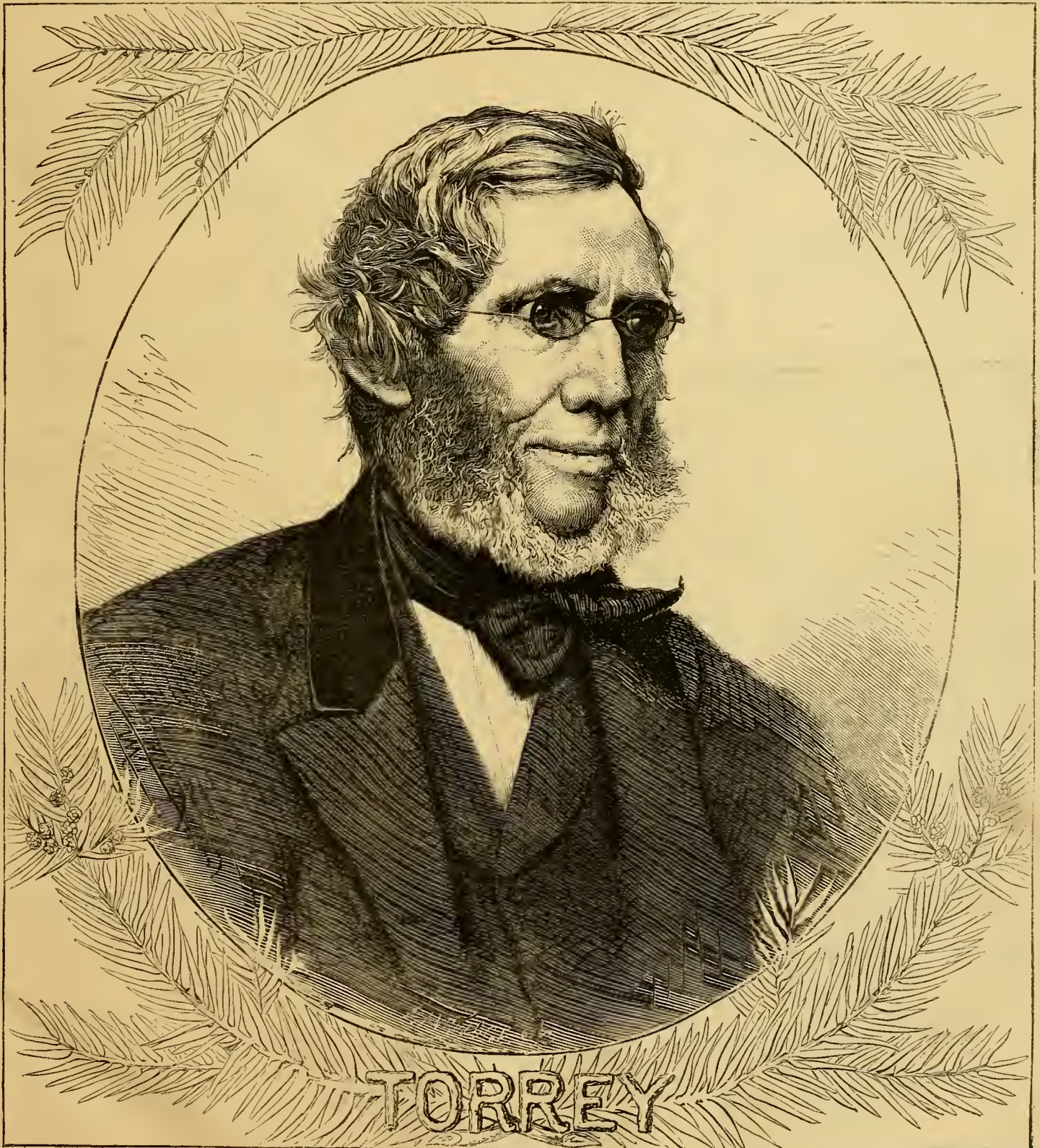
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NEW YORK, APRIL, 1873.

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Day of Month.	Day of Week.	Boston, N. Eng- land, N. York State, Michi- gan, Wiscon- sin, Iowa, and Oregon.			N. Y. City, Cl., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken- tucky, Missou- ri, and Cali- fornia.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
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2	W	5 42 6	11 33		5 42 6	11 33		5 42 6	11 33	
3	T	5 40 6	11 32		5 40 6	11 32		5 40 6	11 32	
4	W	5 38 6	11 31		5 38 6	11 31		5 38 6	11 31	
5	T	5 36 6	11 30		5 36 6	11 30		5 36 6	11 30	
6	W	5 34 6	11 29		5 34 6	11 29		5 34 6	11 29	
7	T	5 32 6	11 28		5 32 6	11 28		5 32 6	11 28	
8	W	5 30 6	11 27		5 30 6	11 27		5 30 6	11 27	
9	T	5 28 6	11 26		5 28 6	11 26		5 28 6	11 26	
10	W	5 26 6	11 25		5 26 6	11 25		5 26 6	11 25	
11	T	5 24 6	11 24		5 24 6	11 24		5 24 6	11 24	
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13	T	5 20 6	11 22		5 20 6	11 22		5 20 6	11 22	
14	W	5 18 6	11 21		5 18 6	11 21		5 18 6	11 21	
15	T	5 16 6	11 20		5 16 6	11 20		5 16 6	11 20	
16	W	5 14 6	11 19		5 14 6	11 19		5 14 6	11 19	
17	T	5 12 6	11 18		5 12 6	11 18		5 12 6	11 18	
18	W	5 10 6	11 17		5 10 6	11 17		5 10 6	11 17	
19	T	5 8 6	11 16		5 8 6	11 16		5 8 6	11 16	
20	W	5 6 6	11 15		5 6 6	11 15		5 6 6	11 15	
21	T	5 4 6	11 14		5 4 6	11 14		5 4 6	11 14	
22	W	5 2 6	11 13		5 2 6	11 13		5 2 6	11 13	
23	T	5 0 6	11 12		5 0 6	11 12		5 0 6	11 12	
24	W	4 58 5	11 11		4 58 5	11 11		4 58 5	11 11	
25	T	4 56 5	11 10		4 56 5	11 10		4 56 5	11 10	
26	W	4 54 5	11 9		4 54 5	11 9		4 54 5	11 9	
27	T	4 52 5	11 8		4 52 5	11 8		4 52 5	11 8	
28	W	4 50 5	11 7		4 50 5	11 7		4 50 5	11 7	
29	T	4 48 5	11 6		4 48 5	11 6		4 48 5	11 6	
30	W	4 46 5	11 5		4 46 5	11 5		4 46 5	11 5	

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.	CHICAGO.
1st Quart.	D. 11. 52 ev.	11. 40 ev.	11. 28 ev.	11. 16 ev.	11. 4 ev.
Full Mo'n	12 5 7 a.	4 53 ev.	4 43 ev.	4 31 ev.	4 1 ev.
3d Quart.	20 1 4 a.	0 52 m.	0 40 m.	0 28 m.	11 53 19h
New Mo'n	26 5 58 ev.	5 46 ev.	5 31 ev.	5 22 ev.	4 52 ev.

AMERICAN AGRICULTURIST.

NEW YORK, APRIL, 1873.

The winter has been a gloomy one, and we are glad the spring is come. We shall have less time to brood over our difficulties. We must take our coats off and go to work. The good ship Agriculture has weathered many a storm. Some timid ones are just now proposing to run her on shore. They think she is going to the bottom. They had better man the pumps, stop up the leaks, and make things snug and tight. Keep away from the rocks of speculation, combination, and indolence. In the open sea there is no real danger—only a little privation. The storm will blow over, and we shall laugh at our fears. If we could put the croakers on shore we would. We have not much respect for the men who propose to throw the provisions overboard. Neither have we much sympathy with those farmers who propose to get up a combination to "produce only half a crop, and thus advance prices fourfold." Such men are not farmers. They have no right to such an honorable name. No real, kind-hearted farmer wishes to see the poor widows and orphans in our cities compelled to pay \$40 a barrel for flour or 50 cents a pound for poor beef and mutton. The writer is a farmer and the son of a farmer, but he wants no fellowship with men who seriously entertain such sentiments. "He that withholdeth corn, the people shall curse him; but blessings shall be upon the head of him that selleth it."

The true remedy for "hard times" is hard work. "In all labor there is profit; but the talk of the lips tendeth only to penury." "He that tilleth his land shall have plenty of bread; but he that followeth after vain persons shall have poverty enough."

As we said before, we are glad the season for work is come. We shall feel better when we get into the fields and turn up the fresh soil. It is not true that we are producing too much wheat or too much good beef, mutton, cheese, butter, and wool. Wheat will be very scarce before next harvest, and even a partial failure of the crop now on the land would send wheat up to famine prices before the harvest of 1874.

Our aim as farmers must be, not to produce less, and not necessarily to produce more, but rather to

produce a better article at less cost to ourselves. Sooner or later an article will bring what it is worth; and no combination can long make it bring more than it is worth. There is nothing in the present outlook to discourage a good farmer.

Hints about Work.

What is Work?—We have said hard work is the only remedy for hard times. By hard work we do not mean necessarily back-breaking, muscle-straining labor. A man might work very hard digging a garden that could just as well be plowed; or he might work hard breaking the lumps of manure on the land by hand that could be just as well broken to pieces with a harrow. We mean by hard work effective work. We mean labor that tells.

Hard Work is doing what your reason and your better judgment tell you ought to be done, and doing it promptly, at the right time, whether you feel like it or not.

Laying Plans and writing down what you intend to do and how to do it, is often the hardest kind of work for a farmer.

Read over your List of Things to be Done.—It is no use laying plans unless you carry them out. Read over what you have written down. Make up your mind what ought to be done first, and then go at it and stick to it until it is done.

Hiring Farm Men.—Make up your mind how many men you will need, and if not already done, hire them now for the season. Wages are high, and we must all try to get along with as little help as possible.

The Best Men are the Cheapest.—This is true whether you board your men or let them board themselves; but it is especially true in the former case. Better give a good man \$25 a month and board than a poor man \$18 and board. It is worth \$10 a month to board a man. One will cost you \$35 a month and the other \$28, while a good, skillful, reliable, experienced farm hand will accomplish twice the work of the stupid, careless man who cares nothing for your interest and thinks about nothing but his money and his dinner.

Married Men are the most reliable. Build good houses for them, and make it worth their while to stay with you year after year.

Give the Boys Work, and take pains to teach them. It is to this source that we must look for our best farm men.

Furnish the Boys Good Tools.—Do not work them too hard. Do not impose upon them, and thus disgust them with farming. A boy's sense of justice is very keen. Do not let the farm men order the boys about, and make them run errands, and do all the disagreeable things.

Plowing.—Start the plows as soon as the frost is out of the ground and the soil dry enough to crumble to pieces.

Barley is usually sown on corn stubble. We have plowed land for barley in a dry spring as soon as the first five or six inches of the surface soil was thawed out, while underneath there was a bed of frozen earth. And we never had a better crop—over 50 bushels per acre.

Sow the Barley as fast as the land is plowed. If sown broadcast, scatter the seed on the furrows before harrowing. Then cultivate and harrow. If drilled, which is by far the better plan, cultivate and harrow first. Then drill and follow with a light harrow. We drill in two bushels per acre. If broadcast, $2\frac{1}{4}$ is none too much seed.

Six-rowed Barley brings a higher price than two-rowed, and when the crop is to be sold is the more profitable kind to sow. For feeding out on the farm the two-rowed should be grown. It is heavier, more nutritious, produces more straw, and does not ripen until after the winter wheat is cut. The six-rowed is usually ripe at the same time as wheat, and both crops have to be attended to at the same time.

Roll the Barley Land.—This is very important, not so much for the benefit of the growing plants

as for the facility of gathering the crop at harvest. The barley can be rolled at any time until it is two or three inches high.

Clover and Grass Seed may be sown with the barley. There is no better crop to seed with.

Oats can be sown later than barley. They will also do far better than barley on sod land, or on low, mucky land. It is desirable to get them in as early as the land is dry enough to work properly. If possible, drill them in $2\frac{1}{2}$ to 3 bushels per acre.

Seeding with Oats is somewhat risky. The crop grows so thick near the ground that it smothers the young grass or clover plants. The only remedy is to sow the grass and clover seed thick and the oats thin—say $1\frac{1}{2}$ bushel per acre.

Peas do well on sod land. Sow as early as possible. Drill in two to three bushels per acre.

Oats and Peas can be sown together on rich land with advantage, say two bushels each per acre.

Oats, Peas, and Barley are sometimes sown together. The straw is excellent for fodder, and the grain, ground together, makes a strong food for horses. There is nothing to be gained, however, unless the land is *very rich*. Sow the two-rowed barley—say $1\frac{1}{2}$ bushel of barley, oats, and peas each per acre.

Gypsum or Plaster usually proves beneficial on peas and clover. Where it is cheap we would also sow from one to two bushels per acre on the barley and oats.

Sow Plaster Early; but if you can not sow it early, or neglect to do so, sow it late—only sow it. When plaster costs less than ten dollars per ton, it almost always *pays* to sow it on dry upland for clover, peas, corn, potatoes, barley, and oats, and sometimes it is very useful on timothy meadows or pastures. Some farmers think half a bushel per acre is enough.

Harrowing Winter Wheat is a practice we can confidently recommend.

Clover Seed on winter wheat should be sown early—the earlier the better, unless you intend to harrow the wheat. Six quarts per acre of clover and four quarts timothy is none too much seed.

Old Pastures are improved by a good harrowing in the spring. Let the harrow-teeth be sharp. Put on three or four horses, and weight the harrows. There is no danger of pulling up too much of the sod. Sow on a little fresh grass seed and three or four pounds white clover per acre.

Potatoes.—As a rule, it is better to plant potatoes as early as the ground can be got in good condition. For an early crop, of course we must plant early. For winter use, the late varieties, such as Peach-blow, should be planted early. Cover them three or four inches deep, and harrow the land as soon as any weeds appear, or before, with a Thomas harrow. It will not pull up any of the potatoes, and will break the crust, stimulate the growth of the potatoes, and kill thousands of weeds. For late planting, the early varieties are best.

Live-Stock.—In the hurry of spring work, do not neglect the animals. See Hints for last month.

Horses that have been at rest during the winter should be worked only moderately at first. See that the collars fit, and that the parts that come in contact with the shoulders are clean and soft. Wash the shoulders with salt and water. If the skin becomes inflamed or sore, bathe it with petrolatum (not kerosene), or wash with warm water and carbolic soap. Keep the feet and legs clean. Wash them if necessary, and *rub them dry*. At noon remove the harness and clean the horses. Feed cut-hay moistened with water and sprinkled over with meal or bran. This can be eaten quicker than long hay, and the horses have more time to digest it before going back to work. At night *always* clean the horses thoroughly and make them comfortable. This is more important than cleaning in the morning. Let them have all the salt they will eat.

Cows.—Feed according to circumstances. A farrow cow that you are milking and fattening at the same time should have three or four quarts of corn

meal per day. A new milk-cow should have abundance of food, but it should not be too stimulating, or what farmers call "heating." There is nothing better than good early-cut hay. This is grass deprived of its water. Chaff such hay, and soak it in water for 12 or 24 hours, and sprinkle on a quart of bran and a pint of corn-meal, and give the cow a bushel of the mixture three times a day. If she will eat more, let her have it. If she does not eat it up clean, remove what she leaves. She will eat all the more for not having food before her all the time—and the more she eats the better. A few roots or small potatoes in addition would be an advantage. Give all the water she will drink. Do not turn out to grass until there is a good bite. And after you turn out, give cut hay and meal in the stable night and morning.

Sheep.—See Hints for last month. Damp, dirty yards and sheds are an abomination to sheep. During dry, warm days the sheep will do better on a dry, old pasture than in the yards, but during storms they must be provided with shelter from the rain. Feed all the hay the sheep will eat up clean. If the sheep have had grain during the winter, continue to feed it moderately. It will enable the ewes to give more and richer milk. Let them have access to fresh water, and give salt daily.

Swine.—If you have a good breed of pigs, take good care of them; feed the young growing stock all they will eat—corn-meal, bran, mangels, small potatoes, and milk. Nothing comes amiss. Vary the food. Keep the pens clean, dry, warm, and comfortable. If you have not a good breed, now is the time to order a pair or two of spring pigs from some responsible breeder. In regard to the management of breeding sows, see Hints for last month or "Harris on the Pig."

Work in the Horticultural Departments.

In all but the more northern latitudes April will find the horticulturist busy with the early spring work. The hot-beds and cold-frames will not need so close attention by the middle of the month, and time can be given to preparing the soil for early crops, and to the many little jobs which require doing.

Do not, however, commence plowing before the soil has had time to dry off. If it is not dry the earth becomes lumpy, and prevents successful working afterwards. Do not attempt to cultivate more land than can be well taken care of by the amount of help one is able to command; better cultivate a little well than a great deal poorly. When the rush of spring work comes, there is often a liability to neglect the many little jobs which ought to be done, and care must be exercised to see that all the time is so used as to secure the best results for the amount of labor employed.

Orchard and Nursery.

Planting.—The ground should be properly prepared for trees, so that they may be immediately set out as soon as they arrive from the nursery. Trees ordered last fall, and which were properly heeled in at that time, can be set out until quite late, as such trees do not commence their growth so early as those recently taken from nursery rows. Directions have been given in previous numbers as to the treatment of trees which arrive with the bark shriveled. In planting, be sure and prepare a good-sized hole for the roots, as one of the most fruitful sources of loss of trees in young orchards is due to their roots being crowded into a small hole. In selecting trees for an orchard, do not take those which have long naked trunks, but prefer those with low and well-shaped heads.

Grafting.—Graft cherry and plum stocks before the buds have started. Other trees may be left until the buds have swelled, provided the cions were cut before the sap had started.

Root-Grafts may be set out in light, mellow soil as soon as the weather will permit.

Cuttings of currants, gooseberries, and grapes

not planted last fall must be put in early; set them in trenches about four inches apart, and pound the soil down firmly around the base of the cuttings.

Seeds for nursery stock should be planted early in beds of finely prepared soil. If the soil is dry when they are planted, roll the bed so as to compact the soil firmly around the seeds. Seeds of evergreens will need shading with evergreen boughs, or, what is better, lattice-work made of laths.

Manure.—Draw out manure to the orchards in which crops are to be planted, and be sure to supply enough so that the trees need not suffer by the growth of the extra crop.

Insects.—Sufficient directions have been given in previous numbers as to methods and means for destroying them. It will be well to bear in mind that every cluster of Tent-Caterpillars' eggs destroyed now will save a great deal of time.

Fruit Garden.

If the farmers in this country only knew the comparatively small cost that would enable them to supply their tables with an abundance of the finer fruits, and the health and contentment which the use of these fruits would bring, many of them at least would engage in their culture. Half an acre of ground near the house planted with some of the best varieties of small fruits would be sufficient to give an ordinary family a bountiful supply. A piece of ground should be selected which has a good soil, which can be enriched by manure, and the lighter work may be done by children.

Strauberies.—Set out beds of these as early as the ground can be worked. See directions for planting given last month.

Currants and Gooseberries.—Prepare cuttings of these early, and plant in good soil well manured. Set out plants from cuttings which are already rooted. Cut out the old wood from bushes which have grown out of shape from neglect of pruning.

Grape Vines.—Uncover those which were laid down last fall and tie to the trellises. Plant out new vines wherever there is room for one. With a little care, one can get a good supply of grapes with but little expense.

Kitchen Garden.

The preparation of the soil, planting of early vegetables, etc., will occupy the chief part of the gardener's time. If the ground was plowed last fall it will be ready to work much sooner than if not plowed until spring.

Asparagus beds need some care in manuring in order to secure an early crop. Attend to them at once, and see that the manure is properly forked in between the rows.

Beans.—Do not plant in this latitude before the first of May, as the late frosts are sure to kill them.

Beets and Carrots.—Sow very early this month, as they will bear a good deal of frost. Make the rows two feet apart, and sow a row of radishes between them, they will be out of the way before the beets or carrots will interfere with them.

Cabbages.—Transplant from the hot-bed or cold-frame to a light, rich soil, and keep well hoed to encourage an early growth. Plants under glass should be gradually hardened off before transplanting, so that the growth will not be checked.

Celery.—Sow in seed-beds in drills eight inches apart.

Chives.—Divide the large clumps and make new plantings, setting the plants eight or ten inches apart in well-manured rows.

Cress seldom succeeds in our hot climate, on account of its going to seed so quickly. A few rows may be sown early in drills ten inches apart. If insects attack the leaves dust with air-slaked lime.

Cucumbers.—Wait until the soil is warm for planting out of doors. A few hills may be covered with glass if wanted early, or a few may be sown in pots or on pieces of turf in the hot-bed.

Egg-Plants.—Sow in hot-beds, and protect the frames with shutters and mats during frosty nights,

Garlic.—Break up the bulbs into sets, and plant six inches apart in the rows.

Horseradish may be put out as soon as the ground is dry, and to save space set the plants between the rows of early cabbages. Plant the sets or pieces of the roots three to six inches long; put them 15 inches apart in the rows.

Leeks.—Sow seed thickly in rows a foot apart, in well-manured soil.

Lettuce.—Keep up a succession of plantings, and set out plants from the hot-bed and cold-frame.

Onions.—Put out sets early, and sow seeds as soon as the ground is ready. Manure heavily with stable manure, and apply a coat of ashes, which is an excellent manure for seed onions. South of New York, onions can not be raised from seed with any certainty. Sow seed in 12 or 15-inch drills.

Parsley.—Sow thickly in boxes placed in a hot-bed.

Parsnips.—Sow very early in well-manured soil, using last year's seed only, in drills 18 inches apart.

Peas.—Plant the rows of fall-growing peas so that there will be room enough to admit plenty of light and air. Dwarfs may be sown in drills 18 inches apart. Secure plenty of brush for the tall sorts if it has not been already done.

Peppers.—Sow in hot-bed with plenty of heat.

Potatoes.—Plant a few for early use, but the bulk of the crop should not be put in until the ground is warm and dry, so that they may commence growing at once. Plant the seed in drills three feet apart, and the pieces a foot apart in the rows.

Radishes.—Continue sowing a few rows every week or ten days for a succession.

Salsify.—Treat the same as recommended for carrots.

Spinach will be ready to cut in many places. New beds should be planted for a late crop.

Swiss Chard and **Spinach Beet** are varieties of beet grown for greens only. Treat like beets.

Sweet Potatoes.—If only a few plants are needed, better buy them than to take the trouble to raise them. Do not plant out until warm weather.

Tomato plants when large enough to handle should be potted and placed under glass, gradually hardening them off as the weather becomes mild.

Turnips.—Sow a few for early as soon as possible.

Flower-Garden and Lawn.

For hints as to the early work of the spring in this department reference may be made to the previous months of this season, as many hints given then will be timely now. Do all transplanting of trees and shrubs as soon as the weather is fit.

Borders will need forking over, and a dressing of well-decomposed manure applied.

Climbers.—The hardy climbers make excellent screens, and a great deal of satisfaction may be had from the flowers as well as the foliage. For climbers there is nothing handsomer than the Clematis, Akebia, and Wistaria, all of which are hardy in this latitude. Of annuals the old-fashioned Morning-glory and Cypress-vine are among the best.

Herbaceous Plants should be transplanted and divided at once, as they start into growth early.

Hardy Annuals.—Sow seeds in the open ground when the soil is dry, but most varieties do best if not sown until next month.

Roses.—Uncover the tender sorts when the weather becomes mild, and prepare to plant out any new sorts which it is desirable to try. Very satisfactory results may be obtained from pegging down the branches so that the bed is covered with a dense mass of foliage.

Bulbs.—Uncover beds of hardy bulbs, taking care not to injure the plants; loosen the soil slightly to prevent the growth of weeds.

Perennials.—Sow seed of perennials in fine rich soil, taking care to label each sort, so that no mistake may arise from their absence. It is also well to make a rough sketch of the beds on paper, and mark each row with the variety of seed planted.

Pruning.—Any tree or shrub in the ornamental grounds the limbs of which have been broken off by snow or ice should be attended to at once, and the wound carefully smoothed and a coat of shellac varnish or paint applied.

Greenhouses and Window-Boxes.

Some fire will be needed during the cold spring days, and the furnaces should be ready at a moment's notice. Give plenty of air on mild days.

Propagating will be the principal work of this month. A large stock should be prepared for planting out in the borders. As soon as the plants have rooted, put in small pots of good soil.

Seeds of tender annuals may be sown in boxes in the house or greenhouse for planting out next month. Do not cover too deeply; the best way is to scatter sifted soil upon the seeds after they are sown and press down firmly with a block or board.

Tuberose.—Start in the greenhouse, and after they commence to grow well turn them out and plant in the open ground in settled warm weather.

Water.—Give plenty of water to growing plants and frequent showers overhead, so as to keep the foliage free from dust.

Insects must be subdued at any cost, and this can be easily done if no plant is placed in the house until it is thoroughly cleansed of all insects.

Bulbs.—Bring out those bulbs which have been kept in reserve for late flowering, and give plenty of water so that they may grow rapidly. Dry off all those which have finished flowering, and store in a dry place for next season.

Window-boxes.—Keep the seedlings growing, and give air each day to prevent their becoming drawn. As soon as large enough to handle, transplant to other boxes.

Commercial Matters—Market Prices.

Gold has been as low as 113½, and as high as 115½—closing Mar. 13th at 115½, as against 114½ on Feb. 13th. ... The trade movements have been checked very seriously by the extreme stringency in the Money market, and the extraordinary depression in the foreign exchanges, which latter has been very unfavorable to free exports of produce. ... There has been less animation in Breadstuffs, with more or less irregularity as to values, the market closing rather weak for the leading kinds, though holders have been reluctant to make important concessions, especially on prime samples of grain, and shipping grades of Flour, which have been in comparatively moderate supply. Ocean freight room continues scarce, thus impeding shipments. ... Cotton has declined on free offerings and a less confident inquiry. ... Provisions have been very active and buoyant, particularly hog products, but close generally tame and rather less firmly. ... Seeds, Wool, and Hops have been cheaper, on a limited business. ... Tobacco has attracted more attention and has been held with firmness.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending March 13th, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.									
1. RECEIPTS.									
Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.	Sheep.
23 d's this mth. 173,000	322,000	325,000	2,100	61,000	664,100				
26 d's last mth. 155,000	413,000	427,000	1,450	95,000	503,000				
2. SALES.									
Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.	Sheep.
23 d's this mth. 183,000	560,000	1,563,000	2,100	61,000	1,088,000				
26 d's last mth. 186,000	1,254,000	1,975,000	18,400	499,000	1,327,000				
3. Comparison with same period at this time last year.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.
23 days 1873.	179,000	322,000	325,000	2,100	61,000	664,100			
24 days 1872.	118,000	227,000	644,000	4,300	107,000	439,000			
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.
23 d's 1873.	188,000	559,000	1,563,000	2,100	61,000	1,088,000			
24 d's 1872.	197,000	805,000	1,871,000	12,500	196,000	1,216,000			
4. Stock of grain in store at New York.									
Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.	Sheep.	
Mar. 10, 1873.	671,97	2,515,892	37,302	291,493	816,596	166,392			
Feb. 10, 1873.	805,511	3,189,115	39,580	463,031	859,131	173,169			
Jan. 13, 1873.	1,173,339	4,711,961	44,799	571,611	1,367,187	175,895			
Dec. 9, 1872.	1,305,975	5,075,731	51,693	634,511	1,608,563	215,326			
5. Exports from New York, Jan. 1 to Mar. 12:									
Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Cheese.	Swine.	Sheep.
1873.	22,387	803,737	2,733,029	1,204	6,700	4,977			
1872.	165,416	1,801,991	2,974,449	18,787		5,717			

CURRENT WHOLESALE PRICES.

		Feb. 13.		Mar. 12.	
PRICE OF GOLD.		114½		115½	
Flour—Super to Extra State	\$5 25	4 50	\$6 00	4 80	
Super to Extra Southern	6 40	6 00	6 10	6 30	
Extra Western	7 20	6 10	6 00	6 30	
Extra Genesee	8 35	6 10	6 50	6 10	
Superfine Western	6 15	6 00	6 00	6 75	
Rye Flour	4 75	6 30	8 65	6 00	
Corn-Meal	3 25	6 30	3 00	3 35	
Wheat—All kinds—White	1 85	2 35	1 80	2 15	
All kinds of Red and Amber	1 50	2 05	1 45	2 00	
Corn—Yellow	63½	67	65	67	
Mixed	63½	68½	63½	66½	
Oats—Western	52	45	57	45	
State	52	45	57	47	
Rye	90	90	95	85	
Hay—Bale, 100 lbs.	75	1 25	75	1 25	
Straw, 100 lbs.	1 10	1 05	1 10	1 05	
Cotton—Middling, 40 lb.	21	21½	20½	21½	
Hops—Crop of 1872, 40 lb.	42	55	40	55	
Peas—Live Geese, 40 lb.	40	75	50	75	
Timothy, 40 lb.	3½	4 00	3 50	4 00	
Flax, 40 lb.	3 75	4 00	3 50	4 00	
Sugar—Refined & Grocery, 40 lb.	8½	11	8	10½	
Molasses, Cuba, 40 lb.	18	35	20	45	
New Orleans, 40 lb.	55	76	76	75	
Coffee—Rio de Janeiro, 40 lb.	17½	20½	17½	20½	
Tobacco, Kentucky, 40 lb.	8	10	7½	10	
Seed, 40 lb.	8	10	8	10	
Wool—Domestic, 40 lb.	40	45	40	45	
Domestic, 40 lb.	40	45	40	45	
California, 40 lb.	38	45	40	45	
Tallow, 40 lb.	8½	9	8½	9	
Oil—Carpenter, 40 lb.	20	40	20	40	
Pork—Ham, 40 lb.	14 50	15 50	15 50	16 00	
Prime, 40 lb.	11 50	12 15	11 75	12 25	
Beef—Plain mess, 40 lb.	9 00	11 75	9 00	11 50	
Lard, in tins, 40 lb.	7½	8½	7½	8½	
Butter—State, 40 lb.	23	45	30	48	
Western, 40 lb.	10	25	10	33	
Cheese—40 lb.	12	16½	10	17	
Peas—Canada, 40 lb.	2 25	3 75	2 00	3 25	
Peas—Fresh, 40 lb.	1 15	1 20	1 30	1 50	
Poultry—40 lb.	12	18	12	18	
Turkeys—40 lb.	15	18	12	18	
Geese—40 lb.	1 15	3 00	1 10	3 00	
Ducks—40 lb.	1 00	1 25	75	1 25	
CABBAGES—40 lb.	1 00	1 15	75	1 50	
ONIONS—40 lb.	5 00	6 50	5 00	7 50	
BROOM-CORN—40 lb.	2	8	3	7	
APPLES—New, 40 lb.	1 75	3 50	1 50	3 25	
POTATOES—40 lb.	1 25	3 25	1 50	3 25	
SWEET POTATOES—40 lb.	3 00	4 00	3 25	3 75	
CARROTS—40 lb.	2 00	2 25	1 50	2 00	
CELERY—40 lb.	1 25	1 50	1 50	1 75	

New York Live-Stock Markets.

WEEK ENDING	Deeres.	Cotes.	Calves.	Sheep.	Swine.	Total.
February 17th.....	7,888	120	631	14,168	56,712	59,033
February 24th.....	7,730	122	621	20,339	59,915	59,767
March 3d.....	7,232	79	770	24,987	59,902	63,460
March 10th.....	6,445	64	112	16,627	55,422	59,270
Total for 4 Weeks.....	38,705	485	2,738	76,121	192,071	211,190
do. for prev. 4 Weeks.....	31,536	425	2,717	164,973	167,100	369,761
Average per Week.....	7,199	99	684	19,020	39,523	41,775
do. do. last Month.....	8,631	109	679	6,941	41,775	
do. do. prev's Month.....	6,326	65	629	18,883	40,219	

Beef Cattle.—The supply of cattle has been lighter during the past month, but fewer were wanted, hence there has been no lack. The demand always falls off at the beginning of Lent, but it is apparently better this year than usual. The quality of the stock has been better than we were receiving some weeks ago, but there is still room for improvement. Texans fell off for a time, but they have started again, and those now arriving show good feeding. Prices have varied very little since last report, the close averaging ½¢ above the opening.

The prices of the past 4 weeks were:

	Range.	Large Sales.	Aver.
Feb. 17.....	8 @ 14½¢	10½ @ 12 ¢	11½¢
Feb. 24.....	8 @ 14½¢	11 @ 12½¢	11½¢
Mar. 3.....	8½ @ 14½¢	10½ @ 12½¢	11½¢
Mar. 10.....	9 @ 14½¢	10½ @ 12½¢	11½¢

Milk Cows.—On account of a scarcity of better and very high prices, we are not getting as many cows as usual at this season of the year. Prices have steadily advanced, and milkmen find it difficult to get a supply of good cows. The rates are \$40 @ \$50 each for very ordinary to thin milk cows of small size, \$65 @ \$75 for fair to good milkers, and \$80 @ \$85 for prime to extra large cows. ... **Calves.**—There has not been the usual increase in receipts in live calves, farmers sending in a greater proportion of them dressed. The demand is fair for good veals, both dead and alive. Small or "bob" calves are coming in sparingly. Senders run the risk of having them seized. As warm weather comes on receipts of live calves will be much larger. Quotations for live, 8c. @ 11c. ½ lb. for ordinary to prime milk-veals, 7c. @ 8c. for hog-dressed grass-calves, and 11c. @ 14c. for poor to fat milk-veals. ... **Sheep.**—The sheep-market has recovered somewhat from the depressed state at which it was left one month ago, owing to the "scab" story, but it is not lively now. The only difference in prices is an advance on thin stock, which people called diseased and refused to purchase at date of last report. The story was mainly a fabrication, as we then said. A decline in wool acts against the trade by diminishing the value of skins. The quotations are: 5½¢ @ 6½¢ for poor to medium sheep; and 6½¢ @ 7½¢ for fair to choice, a few extras going at 8c. ... **Swine.**—Arrivals of Western dressed for the past 4 weeks were 48,916. They are now nearly over with for the season, the weather being too warm to bring them forward in good condition. Live hogs, too, are coming in less freely, and

prices of all kinds have advanced. Quotations of live hogs, 5½c. @ 5¾c.; city-dressed Western, 6¾c. @ 7¼c. for heavy to medium, and 7½c. @ 7¾c. for light; Western dressed, 6½c. @ 7c.

3 MONTHS. Three Months.

There are yet three months remaining—April, May, and June—during which any person who wishes to obtain one or more of the useful and valuable articles offered in our Premium List (of which a copy will be sent free to any applicant, see page 159) can easily get them. This has already been done by more than 14,000 persons, who during years past have tried with success the raising of Clubs of Subscribers for our papers, and availed themselves of the liberal offers of Premiums made by the Publishers.

We invite all our Subscribers to take hold of this work and secure a Premium while the offer is open. Specimen copies of both papers will be sent to any wishing to show them for this purpose.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co., Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$3, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

Delivery of Chromos.—We have delivered all the Chromos due to subscribers to the *American Agriculturist* up to December 31st, 1872. We shall continue the delivery with the utmost dispatch.

To Inquirers.—The space devoted to the "Basket" is full, and yet a large share of the answers prepared is left out. We deeply regret it, as it is our desire and intention to treat all alike. It would help the matter much if every correspondent would write upon only one subject or on subjects of the same class. If pigs, poultry, manure, bees, fruit, flowers, and household matters are all mixed in one letter, there is but little probability that we shall ever find time to disentangle them. We can not write treatises to order. When one requests us to tell him all about growing tobacco, or

'all about' any other crop, it is asking rather too much. Those who send full post-office address stand a good chance to receive a reply by mail, in case one can not be made in the paper. We do not promise to do this always, but we try to meet the wishes of our friends as far as possible.

"Lucy Maria" is a queer title for what we have no doubt will prove to be a queer story which begins this month in *Hearth and Home*. The publishers have engaged Mrs. A. M. Diaz—so widely known through her "William Henry Letters"—to write about "Lucy Maria," and we have no doubt that it will be well worth reading.

Late Rose Potatoes.—Last year we mentioned the fact that unfortunately there were several varieties of potatoes in the market called "Late Rose." Statements in other papers, as well as letters in our possession, accord with our own experience that the variety known as "Thorburn's Late Rose" has proved itself remarkably satisfactory, being very productive and of excellent quality.

How to Commence Botany.—"W. C. G." A young man—or girl either for that matter—can have no better introduction to the study of Botany than Gray's "First Lessons." The first principles as set forth in this should be thoroughly comprehended before the classification and naming of plants is undertaken. For this work you will find "Gray's Manual" indispensable. We can send the two bound in one volume, for \$1.

Mount Hope Nurseries.—Messrs. Ellwanger & Barry, of Rochester, N. Y., send out with their spring catalogues some interesting statistics in regard to their immense establishment. They have now in cultivation as nursery 650 acres. In the busy season they employ about 250 men and 25 horses. The business is divided into several departments with a competent foreman to each. An important feature in this establishment is the extensive specimen grounds where one or more examples of the different fruit and ornamental trees, shrubs, and herbaceous plants, may be seen in perfect cultivation. We know of no more interesting and instructive place for a lover of trees and plants to visit than the grounds of this celebrated establishment.

French Correspondence.—We have already mentioned the desire of the *Cercle Horticole Lyonnais*—the Horticultural Circle of Lyons, France—to enter into friendly relations with our horticulturists. M. Jean Sisley, a zealous amateur, writes that he is ready to reply to questions concerning new plants, where to obtain them, and to give any other information that may be in his power. M. S. is not a dealer, but a devoted horticulturist who wishes to be useful in this respect. His address is M. Jean Sisley, Secrétaire Général du Cercle Horticole Lyonnais, Rue St. Maurice Monplaisir, Lyon, France.

Liberal Potato Premiums.—Messrs. B. K. Bliss & Sons offer (\$500) five hundred dollars in premiums for the best results in the cultivation, during the coming season, of the "Early Vermont" and "Compton's Surprise." These varieties were figured by us last month. For circulars giving the conditions of award send to the firm above named.

Soapmaker's Waste.—"T. B., Morristown, N. J., is offered the refuse from the kettles of a soap factory, which purports to be bones, lime, and potash. He asks its value.—The bones are the most valuable part. After the boiling in the lye, they are easily crushed, and would be worth one cent a pound. The lime and potash left in the kettles are not of much value, if the soap has been made economically. As a material for composting with muck, this part of the refuse would be worth the cost of hauling, perhaps, but not much more.

To Manage a Peat Swamp.—Isaac Lea, Sacramento, Cal., writes for the benefit of E. G. H., that if he will set fire to his peat land when it is dry, he will have no trouble in raising the best of crops on it.—This is a quick and ready but a destructive way of managing peaty swamp land. Lime is the best application, and if applied heavily, say two hundred bushels to the acre, will make it fertile.

Underground Poultry-House.—"E. J. D., Edwards Co., Ill.—The greatest difficulty with cellar poultry-houses is that they are generally damp, ill-ventilated, and uncleanly. If these pernicious possibilities are prevented, there can be no objection to having part of the apartment below the surface of the ground. On the whole, we have found the light Brahmas the most profitable and agreeable fowls on the farm.

SUNDRY HUMBUCKS.—The budget of humbug material, though bearing the same general aspect, presents each month some features more prominently than others. Ordinarily dealers in "the queer" have predominated, but this month these are outdone by

LOTTERIES IN VARIOUS FORMS.

These are disguised under the various names of Prize Associations, Ticket Sales, Grand Gift Concerts, and some, more honest in this respect at least than others, advertise themselves openly as lotteries. Do the readers of the *Agriculturist* need to be told what a lottery is? It is under the ban of the law in most States, and among all right-thinking people it is classed with other species of gambling. Even where regulated by law, as it used to be, the lottery is a swindle, and every one who purchases a ticket virtually makes a bet that some one else will lose something. Perhaps the worst form of lottery is that in which the thing is "sugar-coated," it being ostensibly held in the interest of some charitable object. Here is an illustration in the

"MINERS' HOSPITAL AND GRAND GIFT CONCERT, for the benefit of the Miners' Hospital Association, of Pennsylvania," at Shenandoah, Schuylkill Co., Pa. The necessity for a hospital to treat those who suffer from accidents in the mines, is set forth in terms of which we admit the force. But the form and manner of establishing this hospital are in the highest degree objectionable. \$100,000 are to be delivered in prizes, but we see no intimation as to the number of tickets to be sold, and strong inducements are offered to agents to sell tickets. The whole affair—should it happen to be honest as such things go—is managed in appearance just as bogus concerns are. All this expensive machinery for establishing a hospital is probably unnecessary, except that for one who is to make money out of it. In Wyoming Valley and at quite as much of a coal center as Shenandoah, a young surgeon a few days ago told us that he had only to suggest to the people the need of a hospital, and aid in all forms came to him so abundantly that he was overwhelmed with gifts of money and supplies. The object of this young man was to help needy miners and not to make money out of gift concerts.

THE LOUISVILLE LIBRARY LOTTERY

has been before the public for some time, and two concerts have taken place. According to the Louisville Commercial, the receipts from sale of tickets to the first concert were \$359,000. After paying all expenses, "the expert who got up the concert and managed it divided with the Library Association the remainder, the share of each being \$22,700"! The receipts for the second concert were \$750,000, and the managers and the Library divided \$90,000 each. If these figures of the Commercial are correct, about nine dollars of the people's money were expended in getting one dollar into the treasury of the Library, and this where Governors and all sorts of dignitaries had a hand in the matter. This may be taken as a fair sample of all lotteries for charitable objects. We have gone thus at length into this matter as we hope not to be called upon again, as we are nearly every week, to give an opinion as to this or that lottery or gift concern, for whatever object. The Omaha State Orphan Asylum "Enterprise" is getting desperate. It guarantees two prizes in every package of twenty tickets. What is the matter in Omaha that a new bait is needed?

GIFT AND PRIZE ASSOCIATIONS.

What can be the trouble at 609 Broadway? Only a short time ago it was the address for some twenty or thirty dealers in "the queer," but now it is out with a prospectus of the American Prize Association, where all sorts of nice things, from Rosewood Pianos to gold pens, are to be disposed of—Tickets only \$1—and a "liberal discount made to those who buy to sell again—large favors gratefully received and smaller ones in proportion." If any one loses money by this or by the "Mercantile Prize Association" in Nassau st., they need not come whining to us about it.

SILKS GOING CHEAP.

The troubles of David W. Engle, of 4th avenue, are such as would move the stoniest heart. In short, he bought 1,200 yards of silk of a man who stole it at the Boston fire. David expected to take the silk West and sell it, but alas! he was taken sick, and alas! alackaday! he has been sick ever since. The good wife took the silk to a pawnbroker—"spouted it," in short, for \$100. The brother in Cuba sent him \$100, but still he is sick, and can't go out to sell that silk. David is afraid to offer the silk in New York, but he will sell it to a man in Illinois for 25c. a yard, provided said man in Illinois will only send him \$10. There is ever so much more to this pathetic story, but that is the amount of it. It must be true, because David sends the man in Illinois the pawnbroker's ticket and a sample of the silk.

O David! how could you lithograph such a touching

letter? And why did you send it to people in Indiana and other places as well as to the man in Illinois. We have actually lost faith in that silk story, all because a prying microscope told us that the sweet letter was lithographed, and probably printed by the ream.

Here are Romaine, Muller & Co., of Broadway, New York, who address lovingly confidential letters to people, trying to induce them to buy their woolen goods at a very low rate. These goods are all from fraudulent bankrupt firms, strictest secrecy enjoined. Ungrateful people, instead of complying with the request to burn the letters, will send them to us. It is very remarkable that Romaine, Muller & Co.'s circular should be in the precise "hand of write" as that of the aforesaid David W. Engle who is sick and has silk instead of woolen goods.

UNSATISFACTORY EVIDENCE.

There are cases brought to our notice which we are morally certain deserve a place in the humbug column, but we forbear to mention them, as the evidence in regard to them is not clear. Thus, one who makes great flourish in offering teas has a small office over a regular tea store; in the door of his office is a hole for the reception of letters, and that is all we can learn about him. We can only say that this is not the way in which people doing a fair business operate. Last month we stated that complaints were made of a dealer in a New England city. One person has written to know if he is the one alluded to, and disowns the intention of doing anything wrong knowingly. He may be sure if he is not the one his name will not be mentioned.

ABOUT THIS TIME LOOK OUT FOR LAWSUITS.

It is a very easy matter to institute a libel suit. It costs but a few dollars. If parties think that because they have done so they will get some gratuitous advertising, they make a great mistake. We only publish the results. For further particulars, see the Byrne trial.

MEDICAL MATTERS.

It makes us almost despond when we turn over the stuff that accumulates under this head. Really, are there any fools foolish enough to be taken with this "Seventh Book of Moses," by one "Doct." F. E. Andrews, and the "Spirit of Science," and a whole string of so-called "Specific Remedies," "University Medicines," leaving out things that we do not care to even name? If any one intelligent enough to read can be caught by such stuff, of what use is our boasted general education? In all this loathsome file of "medical" trash we find only one document of sufficient importance to merit especial notice. This is the "National Surgical Institute, Indianapolis, Indiana." Why "National"? That is too modest by half. Why not Continental or Universal? That would be a name something in keeping with its pretensions! This Institute in its circular claims, among other things, to cure cases cheaper and to do it quicker than any other institution in the United States, and is filled with all sorts of startling appeals to the lame, halt, and blind, and is embellished with engravings of a lot of formidable apparatus and of some of the most revolting cases of human deformity. This precious circular bears the names of those who sign themselves M.D. If they are really Doctors of Medicine, they are just now in very disreputable business. The concern makes reference to various State, County, Bank, and other officers. If these references be authorized—but we have too much respect for Indiana to believe it. Even the "Isles of the Sea" are not free from this all-pervading quackery. A chap in Bermuda, who appropriately lives at "The Flats," informs us that "BAUNSCHEIDTISMUS, known all over the world, restores health when all else seems lost." The uneducated mind might ask, Of what use is health "when all else seems lost"? But we are content to know from our intelligent correspondent at Bermuda that Baunscheidtismus is a very roundabout way of spelling "humbug." If people will treat their own eyes by the use of "eye-cups," or any other appliances, they do so at their own risk. How many people know anything about that most wonderful organ, the eye? Yet persons who would not undertake to repair their own watches think they are competent to tinker their own eyes.

THE "QUEEN"

or pretended counterfeit business must be fearfully gull, as we are able to make out only the following meager list of names: Alexander Lord, F. A. Olmstead, G. C. Orton, J. K. Randall, Abram Wilcox, and John Ward date simply from New York. E. B. Deoll, J. Ward Emerson, J. W. Easign, C. B. Mills, and H. C. Strong are to be addressed at 71 Bleeker street. N. I. Jenness is the solitary one from 31 Amity street; and that good old number 639 Broadway seems to be deserted by all but E. L. Hopper. One of these "Queen" chaps writes to a correspondent in Mississippi that if he betrayed him he would find some means to punish the Mississippian. The last-named says that although he never saw a Ku-

Klux-Klan, if Mr. "Queen" will come down there, he will get up a K. K. K. for his especial benefit.

Peas in Southern Illinois.—"W. W.," West Salem, Ill. It is not likely that peas would be a profitable farm crop in comparison with corn in Southern Illinois. A fair yield would be 30 bushels per acre on land that would produce 50 bushels of shelled corn. The crop is injured by the weevil, and new seed would have to be procured each year.

An Original Fence.—"S. J. H.," Tusculum, Ala., desires to build a plank fence on a plan which he has originated. The panels are made by nailing the planks to end pieces three inches wide and one and a half inch thick, with the edges beveled. One panel is fastened to another by hooks and staples, and sufficient "worm" is given to make the fence self-sustaining. He asks if such a fence is patented, and where he can get the hooks and staples made?—We do not know of any patent fence with which this would interfere. Probably the best way to procure the hooks and staples would be to purchase a bundle or two of Norway nail-rod, and let a blacksmith make them.

Greenhouse Queries.—"J. T.," Ct., asks: "(1) Would muck, after being properly mixed with lime, sand, and rotten manure, make a good potting soil for plants in a greenhouse? (2) Would an ordinary base-burner stove with a 6-inch pipe warm sufficiently a cool greenhouse 30x18 feet, 14 feet high at ridge-pole, if said pipe was taken under one front bench and across one end, where the thermometer is liable to get down 10 or 12°?"—(1.) It depends altogether upon the kind of muck. If very fibrous, yes. If of the "cheesy" kind, no. Stack up sods and let them decay a year, and you will have something better. Mix with sand and manure as needed. (2.) A long iron stove-pipe would soon make trouble in a greenhouse by rusting from condensed products of combustion and leaking. Besides, it does not retain heat long enough. The stove might answer with a brick fire for the first six feet or so, and cement pipe for the rest of the length.

Money in the Poultry-Yard.—"C. M. B.," Plantville, Ct., sends his experience with poultry. 26 Brahma pullets, produced 700 eggs, from the 1st Nov. up to the 20th January. 56 dozen of these were sold at 40 to 45 cents a dozen. The feed was corn, scraps of meat, and whey.

Harrowing Wheat in Spring.—"D. E. S.," Stark Co., Iowa, wishes to try harrowing his wheat in spring, and wants information about it.—We do not think he will be disappointed in the result of the experiment. The "Thomas harrow" is the best implement for this purpose, or that one figured in the *Agriculturist* of January last. It should be done as soon as the ground is in good condition in spring, and the clover-seed may be sown immediately before or immediately after it; it is immaterial which. The Thomas harrow may be ordered through any dealer in implements.

Lampas.—"F. C. L.," Timmons ville, S. C., has some mules whose gums are swollen, so as to interfere with their eating. He asks how to treat them.—Take a sharp knife and scarify the gums in a few places until they bleed. The operation is painless. For a few nights give soft feed, with half an ounce of saltpeter.

Culture of the Persian Cyclamen.—Thos. Handley, St. Louis, Mo. The small bulbs raised from seed last year must be allowed to grow as long as they will. Sometimes they will grow until the next spring. As soon as they cease to put out new leaves, gradually withhold water, and in a month or six weeks the bulbs will be thoroughly ripe, when they should be put, still in the pots, in a cool place, and be left until the first of September. Then repot the bulbs in a compost of equal parts of loam, leaf-mould, and sand, not covering the bulbs with earth, but simply placing them on the surface. Water sparingly at first, and when they commence to show their leaves, place them in a window where they will receive plenty of air and sun. Old bulbs after flowering should be treated in the same way.

Seeding an Orchard.—"R. W.," Aurora, Wis.—In seeding down an orchard to grass, we would prefer to plow it lightly and harrow before sowing, and then brush the seed in with a brush or bush-harrow. A bushel and a half of orchard grass (14 pounds to the bushel) and six quarts of clover is what we have sown with satisfactory results.

Seeding a Meadow.—"R. J. B.," York Co., Pa., wishes to seed a meadow that has been rooted by bogs without plowing it, and desires to know the

best grass for it. It should be harrowed early in spring with a heavy, sharp-toothed harrow, and sown with twelve quarts of timothy, after which it should be gone over with a brush harrow. If the season is favorable, it may be mowed, but it would pay better to leave the mowing until next year.

Bitter Milk.—"J. R. K.," Phenix (?), writes that he has a cow whose milk and cream become bitter after standing twelve hours. The cow is fed on good upland hay and two quarts of corn-meal per day. She is to come in again in April. He asks, What is the reason?—There may be many causes for such an effect. There may be weeds in the hay, the cow's health may be affected by her condition, or the milk may be affected by the odors from roots, or an ill-ventilated cellar, all of which are capable of producing the flavor complained of. If nothing in the hay or cellar can be found, it probably rests with the cow; let her go dry.

About Barley and Beets.—"J. B.," Wellsville, Pa., asks, What is the proper season for sowing barley? Is it a paying crop? and How can beet-seed be sown without a drill?—Barley should be sown from the 1st to the 10th of May. It is a paying crop only on light and rich soils, and when properly managed. An inexperienced farmer should avoid sowing barley, and sow oats instead. Beet-seed may be sown by hand, by opening a light furrow and scattering the seed therein, and covering with a harrow drawn on its back, or by drawing between the rows by a hook fastened at the point, two short planks, fastened together like a letter V. See "Sidney Seed-Sower," on page 103, last month, and contrive something similar.

Best Clover for Hay.—H. E. Lee, Guilford, Ct.—The common red clover makes the best hay. The large or mammoth variety is too coarse and makes very poor hay, although it is well adapted for using green for soiling purposes or for green manuring.

Draining Salt Marshes.—"W. W. L.," Charleston, S. C., desires to drain a flat covered a foot in depth at each tide.—It will be necessary to throw up an embankment (with a ditch inside) sufficiently high and long enough to prevent the flooding, then to cut subordinate ditches to empty into the main ditch. Where the main ditch empties through the bank, self-acting flood-gates must be built, to allow the drainage to escape at low water and to prevent access of the flood-tide. Tile drains are not suitable for draining land of this character. In the *Agriculturist* of February, 1866, page 57, there were given drawings illustrative of the draining of similar marshes in New Jersey which would be applicable to this case.

Clover Hay or Rye and Oats.—"W.," —For high-colored sweet-flavored butter we have found clover hay cut when in early blossom and cured in the cock without much exposure to the sun the best feed. The next in value is oats cut when in the milk and carefully cured. Rye cut green and cured we do not value very much. We have found peas and oats sown together cut in flower and cured, to be excellent feed for milch-cows during winter. It is also a prolific crop.

Becoming a Veterinary Surgeon.—"D. D.," Cass Co., Neb.—A ship-load of books would be insufficient to educate a veterinary surgeon without practical acquaintance with the anatomy of the horse, and a large experience with both well and sick animals under a great variety of circumstances. Send for the prospectus of the New York College of Veterinary Surgeons.

Fish-Guano.—"G. M.," Harbor Grace, N. F.—Fish-guano, as made in the United States, is a residual product from the manufacture of fish-oil. The fish are steamed, pressed, and freed from the oil. The scrap is then dried, and broken up by a machine with rapidly rotating arms confined in a drum, and is then packed in bags or barrels for sale. In the case of G. M., the fish might be put in heaps until partly decomposed, then dried by exposure on platforms to the sun heat, and if occasionally watered with a solution of sulphuric acid the escaping ammonia might be fixed. They might then be pulverized as above and packed for sale. The fish-guano is worth \$25 and upwards per ton of 2,000 lbs., in this market; but it would doubtless find a ready market also in England.

Preparing Butter for Market.—"L. G. D.," New Haven, Ct.—It always injures the quality of good butter to repack it; its grain is injured and the flavor is deteriorated. There would be nothing gained, for it is not the shape in which butter is put up that makes it salable at extreme prices. The shape is only for convenience—the quality is what brings the price.

How to Construct a Cistern.—"J. B. G." gives the following instructions relative to cisterns: A cistern should be dug circular, with bottom lower in the center, the sides and bottom pounded solid, the wall then built hard up against the sides, and the interior cemented all over. Should water come in at the bottom, spread dry mixed cement, an inch thick, then pave the bottom, and fill the cracks with the dry mixed cement, brushing it with a broom, then coat with cement mortar, and the job will be perfect. The water coming in at the bottom is absorbed by the dry cement which immediately sets and forms an impervious coating.

Perrin Prairie Farmers' Club.—This club, located in Clinton Co., Mo., at its annual meeting January 8th, 1872, elected A. C. Crook President, W. Johnston Vice-P., Michael Moorhead Sec. The P. O. address of the Secretary is Plattsburgh, Clinton Co., Mo.

Pea-Meal.—"J. M.," Sanilac, Mich., asks if peas and oats ground together are good feed for horses, and in what proportion they should be mixed. Also is pea-meal as good for cows as corn-meal.—There is no more nutritious food for horses than pea and oatmeal. Peas contain 22 per cent of flesh-forming substances, oats 12 per cent, and corn 12 per cent, while peas contain less oil than either oats or corn. Peas and oats should be mixed in equal quantities. Corn and oats fed to cows will produce more cream than will peas.

Milk Farming.—"C. E. L." has a farm, 5 miles from New York, of 30 acres, hired at a rent of \$400 per year, and asks if it would pay to buy 15 cows and sell the milk.—Without experience, no person could feed 15 cows on 30 acres of land; and altogether milk farming is one of those special branches of business in which failure is certain, unless there is previous knowledge and abundant tact. The profitable disposal of the milk, too, is not the easiest part of the business.

The Mystery of Metropolisville.—This story, by Dr. E. Eggleston, which has been so popular as a serial in *Heart and Home*, is now being published in a book form by Orange Judd & Co. Price, by mail, \$1.50.

A Dry Cellar.—J. B. Graham, Lebanon, Ohio, thus writes for the benefit of J. S. Warren Co., Ohio, who has a wet cellar. He says, dig out the bottom of the cellar, commencing at the sills two inches below the walls, increasing the depth to the center, so that it shall have the form of an inverted arch; then the earth should be pounded firmly and well cemented, allowing the cement to go under the walls an inch or so, and up the sides for two feet. Then the bottom should be filled up level with sand and paved. If this is all properly done, the cellar will be rendered dry permanently.

Utilizing Blood.—"J. E. W.," Atlanta, Ga.—The simplest way to use the blood for garden manure would be to compost it with earth and harrow it into the soil after plowing.

Feed for Milk-Cows.—"R. F. S.," Lycoming Co., Pa., asks, Which is the cheapest feed for milk cows—wheat bran, buckwheat bran, corn-meal, or oatmeal?—Buckwheat bran is the dearest at \$10 per ton, oats ground at 40 cents a bushel is next, wheat bran at \$20 a ton comes next, and corn-meal at \$20 a ton is the cheapest; but the best combined food would be wheat bran and corn-meal. It must be remembered that in a bushel of oats there are 15 pounds of useless or next to useless husk. It is better to pay one tenth for grinding grain than to feed it whole.

A Prolific Bean-Stalk.—"W. H. B.," Hawkesbury, Canada, writes that in 1869 he gathered two stalks of beans, which grew singly in the hills, on which there were respectively 170 pods containing 860 beans, and 145 pods with 705 beans. He therefore fully believes the bean story of T. R., of New Castro, Mich., lately given.

Manuring Clover.—"E. C.," Henry Co., Iowa.—Plaster is probably the only manure that could profitably be applied to a field rented for only one year. One bushel per acre might be sown evenly over the field as soon as the clover has started into growth.

Do Bots Kill Horses?—"W. H. H.," Athens, Tenn., sends us a piece of the stomach of his horse, which recently died, and which on being opened was found to have the stomach completely filled with bots. He says the specimen sent is exactly as cut from the stomach with the bots as they were packed in it. The worms are an inch thick on the coat of the stomach, which was eaten through so as to allow the bots to pass into the abdomen of the horse.—It was a bad case, and

proves conclusively that the bots were the cause of death, producing by their immense numbers fatal inflammation and destruction of the walls of the stomach. But unfortunately nothing could have been done to save this horse, excepting to have prevented the bots taking possession of the stomach. Any medicine that will cause these creatures to loose their hold on the coats of the stomach will kill the horse. They are there fulfilling the law of their being, it is the place that nature provides for them, and any medicine that would kill them would cause a fatal inflammation of the horse's stomach. Prevention is the only cure; and that is, to destroy the eggs before the horse licks them off from his legs and takes them into his stomach. This may be done by washing them off with the horse's coat with warm water, or scraping them off with a sharp knife.

Sap-Spouts.—"G. T.," Skaneateles, N. Y., asks if there is any successful patent sap-spout.—Yes, one made of galvanized iron, made by C. C. Post, on which the sap-bucket is hung, is an excellent one.

A Leaky Cistern.—J. B. Graham, Lebanon, Ohio, says there is no help for a leaky cement cistern but to tear down the wall and rebuild it.

Stretches in Sheep.—"Mrs. W. S.," writes that in her experience stretches in sheep have been relieved without fail by giving an injection of a pint of warm water; and a return is prevented by giving lard, molasses, and some sulphur.—Our own experience is that sheep which are regularly supplied with salt and sulphur are never troubled with stretches, which is simply the result of indigestion.

Plowing for Navy Beans.—"G. C. A.," Bellevue Neb.—It is not necessary to plow a prairie soil broken up last summer deep for this crop, but it needs a clean soil, which newly broken prairie will hardly be. We should prefer to plant them on a corn stubble or after potatoes.

Why do the Lambs Die?—"Mrs. W. S.," asks, Why do lambs that seem smart and have plenty of milk die the second or third day after they have entered this eventful life?—Never having lost lambs in that way, nor having come across such a case, we are at loss to explain it. Perhaps some of our readers possess a clue, and will favor Mrs. S. with their ideas about the matter.

A Choked Horse.—"L. F. C.," Long Branch, N. J., asks advice in the following difficulty. He has a horse which is all right in every respect, but that when he has been driven for half a mile or so, on being brought out of the stable in the morning, he becomes choked and is short of breath for a few minutes; after which the trouble passes away for that day. He criba a little, and as a preventive has a strap drawn tightly around his throat.—The strap probably causes the trouble; the pressure on the muscles of the throat may cause a spasmodic action for some time after the strap is removed. It should not be used; it is a barbarous and dangerous resource. A better plan would be to procure a muzzle similar to the one figured in the *Agriculturist* for October, 1872.

Indigestion.—"W. M. M.," has a horse that eats heartily, but is in poor condition and has a rough coat. His breath is very offensive, and he acts sometimes as though he were chewing the cud. He asks advice.—The trouble is probably indigestion. His food should be changed. He should have bran-mashes and boiled oats with some very good hay, and occasionally a handful of linseed. A handful of powdered charcoal should be given with each feed for a day or two, along with half a table-spoonful of salt. It would be as well also to give him each evening for two weeks in his feed half an ounce each of powdered gentian and ginger.

Trouble with Sheep and Lambs.—"H. D.," Madison Co., Iowa, had last year under his care 1,000 sheep. In the spring some of the ewes had what seemed to be a red bladder protruding from them. After some weeks they died. When weaning the lambs they were turned into a cornfield away from the ewes, and a number of them were badly scoured and soon died. How are these troubles to be prevented this season?—The trouble with the ewes was inversion of the uterus. The sheep should have been taken by the hind legs and the hinder part elevated, while with the hand well greased with pure lard the bag or uterus should be gently and carefully returned. Twenty drops of Tincture of Opium (Laudanum) in a pint of oatmeal gruel should be given, and the ewe kept quiet in a dark stable for a day or two. When lambs are weaned they should be watched closely, as they are then subject to accouts. The following

may be given to them usefully: Prepared Chalk half an ounce, powdered Catechu half an ounce, powdered Ginger quarter of an ounce, powdered Opium half a dram, mixed with half a pint of Peppermint Water; a table-spoonful should be given twice a day.

Value of an Essex Pig.—"G. C. A.," Bellevue, Neb., asks, What is the value of a young full-blood Essex boar pig?—It is impossible to say without knowing the pig. One might ask equally well, What is the value of a watch? Write to those who advertise.

Hard Times.—"A Subscriber" in Clinton, Kansas, writes that times are harder than ever before. He is feeding 130 cattle and as many hogs. A car-load of hogs was shipped a few weeks ago which did not bring what they cost, and two cars of fat cattle barely paid cost.—A similar complaint is common everywhere amongst farmers. It is to be expected that they will experience the same vicissitudes in business that other people, as merchants, manufacturers, and ship-owners, do. These, however, hang on, worry through, reduce their expenses, and conform to circumstances as well as they can, until times improve again, as they never fail to do when the cause or combination of causes becomes removed. Patience and perseverance are needed in farming as well as tact and hard work.

How Much Butter?—"F. D. P.," Nicholson, Pa., asks, How much butter should a good cow make on hay with four quarts of corn-meal and wheat-bran mixed in equal parts per day; and at what age is a cow in her prime?—It would be a good cow that would make a pound of butter a day under the above circumstances for a length of time. A cow is in her prime from six to eight years of age.

Palpitation of the Heart.—"J. H. M.," Center Co., Pa.—This complaint may not be disease of the heart, as is supposed, but a general want of condition, consequent on her recent sickness. Nothing can be done but to give rest, with the best food and care. Similar cases have occurred, which have been followed by swelling of the legs and death.

Failing Fowls.—"J. H. Y.," Delaware Co., Pa., has a quantity of Light Brahma fowls which are not doing well. The Light Brahmas with us have been as hardy as any race, and more so than many. The trouble no doubt is in want of proper care and attention. Fowls will not thrive without the very best care, regular feed, and perfect cleanliness and dry quarters.

To Clean Sleigh-Bells.—"J. R.," asks how to clean sleigh-bells.—A good method of cleansing them is to dip them into oil of vitriol and then rinse them thoroughly in water. Vinegar will also clean them, but more slowly than the oil of vitriol.

Grist Windmills.—We have had a large number of applications for drawings, plans, and specifications of windmills for grinding and other heavy work. It is impossible for us even to find time to reply to such letters, without furnishing plans which in each case would employ an active millwright a week to prepare. We feel certain that there is a profitable opening in the West for a person able to construct these mills, and any millwright who will give his attention can readily adapt them to the work they are to perform, and will do a service by making himself known in the proper manner.

Trees Girdled by Rabbits.—"M. O. Taylor, of Missouri, writes that some years ago a neighbor of his had forty apple-trees girdled one winter by rabbits. The trees were three years from planting. "He immediately took narrow boards, four or five inches wide, and long enough to go above the reach of the rabbits, sharpened one end, and drove them into the ground so as to form a square box around the tree. He tied the box together with a strong cord and then filled it with fresh soil and pressed it in firmly. The next spring the trees budded and grew as well as any trees in the orchard, and have done well ever since. He took the boxes away the second spring and found that a new bark had grown over the entire girdled part."—When trees are only partially girdled, the plan described is a good one. We have known trees to be saved by binding them round with cotton cloth and then smearing the cloth with tar, and by surrounding with a plaster of cow-dung and loam bound on with a cloth. The object is to exclude the air. The chances of recovery are increased if the tree are severely pruned early in the spring.

Barn Plan.—"R. S.," Lander, Pa., asks for a plan of a barn for 20 head of cattle and 4 horses.—Just such a barn was figured and described in the *Agriculturist* for December, 1872, to which R. S. is referred.

Spreading Manure.—"J. M. D.," Pierce Co., Ga., feeds his cows in box-stalls on cotton-seed, wheat-bran, and cured cow-peas, unthrashed. He asks, Is the manure from these cows what may be called good? Will ten tons to the acre do for corn, and will it hurt it to haul it out on to light land with clay bottom now?—Such manure is far above the average that is made, and ten tons of it will be a very fair dressing for an acre of land. It will be far better to haul and spread it at once than to wait. It should not be put in heaps.

Price of Milk in the South.—"J. M. D.," Georgia, writes as that he sells his milk at his door for fifteen cents a quart. Happy man!

How to Learn Farming.—"T. S.," Fall River, would learn to be a farmer. He asks if he should go to work with a farmer next spring, or go to an agricultural college.—By all means go and work for some good farmer, and spend every spare hour in reading and studying books and papers on agriculture. By doing this, T. S. and many other young men who have asked the same question, and for whom this is intended, will be earning money, learning the practice of agriculture, and improving their minds at the same time. Closely study the *Agriculturist*, and endeavor to practice and test its teachings in the stable, the barn-yard, and the field. In a few years there will be money saved to take a farm on shares or on rent, or to go West and buy one.

Inquiries from Oregon.—"W. H. C.," St. Helens, Oregon—Potatoes, turnips, pumpkins, mangels, or beets, cooked and mixed with bran or mill-stuff, will keep stock-hogs very cheaply through the winter, and they will thrive better on such food than on all grain. The soil will absorb all the strength of the manure that may be washed out by the rain. Cornstalks, oat-straw, or pea-straw, mixed with a portion of hay, cut and mixed with a few quarts of oat or corn-meal and a peck of beets or mangels, daily, will be cheap feed for cows; and if they are good, fair cows, it will pay (if no labor is to be hired) to make butter at 30 cents a pound, but the profit will not be large. The profit in buying pork at 6 cents to make into bacon at 15 cents would be very small, if any at all.

The Best Potato Plow.—"Dr. A. S.," Huron Co., O., asks for the best potato plow to be used on clay land. The best plow for cultivating potatoes is the one-horse Collins steel plow.

Worms in Milk.—"J. K.," Sonoma Co., Cal., says a neighbor has two cows in whose milk minute worms are found, so small that they can scarcely be seen without a glass. He asks some reader of the *Agriculturist* to give him light on the subject.—Very often milk contains very small fragments of curd-like matter which may easily be mistaken for worms. These appear also in the butter and injure its quality. They are supposed to be due to a diseased condition of the blood or milk vessels, resulting from fever or inflammation. Again, living organisms are found both in the blood and milk of cows which have drunk impure water, but it would not be safe to suppose the so-called worms described above to be due to this cause, unless the cows really have drunk such impure water, in which case the cause should be removed.

Looseness of the Bowels.—"E. H. H.," Fenton Co., Ind., writes that his horse is troubled with looseness of the bowels. The dung is soft, but not liquid. He is fed on corn in the ear and prairie-grass. What shall he do about it?—Let the horse alone, unless the feed can be changed to oats, or his condition is affected. This is a very common effect of feeding new corn. Salt should be given in moderate quantities daily, or be kept where the horse can always lick it.

Drive-Well.—"J. H.," Berks Co., Pa., wants to know all about drive-wells. In reply to J. H. and several other inquirers, we would say that these wells consist of an iron pipe two inches or more in diameter, with a solid-steel point at the end. Above the point the pipe is perforated with holes. This pipe is driven into the ground with a sledge until water is reached. If solid rock is met with, the well is a failure; if loose rock, another place is chosen and the work is done over again. When water is reached, a pump is attached to the top of the pipe, and the well is finished. They are only used where water is near the surface.

Frost-Work on Glass.—"C. M.," writes that he has discovered the cause of the peculiar scroll formation of frost crystals on the window-pane. It is because in cleaning the glass the cloth is rubbed on to it in circles, and the crystals follow these lines.—C. M. is mistaken. All windows are not cleaned exactly with the same curved strokes. Some are finished with up-

and-down and lateral strokes, and yet the frost-work is alike in all. Besides, how then could the similar scroll-work seen on the pavements in the streets and other places be formed?

Harrowing Young Grass.—"J. K.," asks if it will injure the young grass sown on winter wheat to harrow the wheat after the grass is up?—Yes; harrowing would then destroy the grass. The harrowing must be done either before the grass-seed or clover-seed is sown, or immediately after the sowing.

Automatic Gate.—"F. C. W.," Windsor, Cal., asks for a pattern of a gate that can be opened or shut without leaving the carriage.—We do not know of any such gate in use that is satisfactory. All those with which we are acquainted work well for a time, and then fail and become worthless. A really good automatic gate has yet to be invented.

Plaster on Potatoes.—"R. S.," Evansville, Ind. When plaster is applied to potatoes it is lightly scattered on the young plants when they are a few inches above ground. With us, plaster and lime have caused the potatoes to boil hard, and the same effect has been experienced by others. The best commercial manure for potatoes is doubtless superphosphate of lime—about a table-spoonful scattered in each hill at planting, or sowed lightly in the drill around the seed. Plaster at \$2.50 per barrel would certainly not pay in comparison with superphosphate at \$3 per 100 pounds.

Feeding Corn.—"O. C. S.," Ashtabula Co., Ohio. Finely ground feed is more economical than whole grain, even though the grain be cooked. Millers usually charge a toll in grain for grinding the cobs, generally equal to a peck of corn for the cobs of ten bushels, and as there is no nutriment of any value in the cobs, it is evident that it would not pay to grind corn in the ear under ordinary circumstances. For oxen and cows which require large bulk of coarse feed for perfect digestion, it might pay to feed ground ears; but for horses and hogs, which do not require such filling, there would not be anything gained in this way. There is no free alkali in a corn-cob, until it is burned to ashes, any more than there is in straw or wood. This idea has been foolishly spread abroad of late by some papers which try to be scientific and agricultural at the same time, but it is an absurdity. When corn-cobs are not properly ground, there are sharp, hard fragments of the cob remaining whole, which will irritate the intestines of a horse or a hog as they pass through undigested. The idea probably thus arose. If the miller will keep his stones sharp, these may be ground so fine as to do no hurt.

Plowing for Corn.—John S. R., New Paris, Ohio. In plowing for corn we would wait until we had the manure, and spread it upon the sod, and then plow. A late-planted corn crop well put in is very much better than an early-planted one poorly put in. Corn loves a freshly-manured sod.

Superphosphate for Potatoes.—So far as our own experience goes, a pure superphosphate does little good on potatoes—not any more good, in one of our experiments, than plaster. Peruvian guano has given satisfaction on potatoes. On our land potatoes seem to need ammonia rather than phosphoric acid.

Distillery Pig Manure.—A correspondent writes us (we suppose he is not a farmer), that there are farmers in his neighborhood who live within a mile of a distillery where the pig-pen manure is thrown into the river, and who have fat, lazy horses standing idle in the stable all winter and yet never draw a load of this manure on to their farms.—We fear they live too near the distillery! Nothing withers energy, industry, and intelligence so surely as the habitual use of distilled liquors. We did not suppose there was a village in the State of New York where manure was thrown away, and can account for the fact only on the above supposition.

Stall-Feeding Cattle.—F. K. Adams, of Wisconsin, in a private letter to one of the editors, says: "I have been stall-feeding 10 head of cattle. I fed them at first with sliced turnips; then with chaffed corn-stalks and $\frac{1}{2}$ hay; then $\frac{1}{2}$ stalks and $\frac{1}{2}$ hay, with corn-meal. They gained well, and I sold by New Year's at $1\frac{1}{4}$ cent per lb. advance, and have a splendid manure pile left."—That will do. The profit of stall-feeding comes not so much from the gain in weight as from the improved quality of the meat, and the advance in price.

Best Roots for Milch Cows.—"W. W.," Ohio, asks our opinion in regard to sugar-beets for milch cows, and how to raise them.—The writer prefers the mangel-wurzel, for the simple reason that a much

larger crop can be raised per acre. The cows will eat more than we are ever able to allow them; and so, even if it is true that they like sugar-beets better than they do mangels, this is no special recommendation. It is not proved that sugar is an economical food. Mr. Lawes's experiments proved that sugar was no more nutritious than starch—and it usually costs more to raise it.

What is a Billion?—"E. G. H.," Ebenezer, N. Y., asks how many figures are required to represent a billion.—The old-fashioned arithmetics counted a thousand thousand equal to a million, a million millions equal to a billion, and so on; but the modern method is to call a thousand millions a billion. The old-fashioned method would require thirteen figures, and the modern one but ten figures, to represent two amounts of different values, each denominated a billion.

Special Farming in Connecticut.—"R.,"—A light loam is best for raising potatoes, but is not best for grass. A strong limestone clay soil is best for grass, but grows poor potatoes. If a medium soil could be procured, and each rotation abundantly manured, say with twenty-five two-horse loads of good manure, with occasional dressings of wood-ashes, fair crops of each kind might be grown; for instance, two tons of hay per acre and one hundred and fifty to two hundred bushels of potatoes. Then the question, "Would it pay?" depends on the price of land, manure, labor, and product, of which we are not informed.

Gerardias.—"W. C. S.," Ind., asks, "Why does Gray describe Gerardia tennifolia, flava, etc., as handsome but uncultivable plants? They are certainly handsome, and grow plentifully in the woods here."—Some of the Gerardias are root parasites and can not be cultivated, probably others are not. Why don't you try those which are abundant with you, both by transplanting and from seed, and report?

Sweet-Potato.—"W. C. S.," writes: "Last spring a new sweet-potato, called Southern Queen, was advertised as better, hardier, and more prolific than Yellow Nansemond. Has this year's experience confirmed these claims?"—In our grounds, near New York, we three years ago grew the Nansemond and Southern Queen side by side; the result was such that we have since grown the Southern Queen only. Its very light color may be unfavorable to it as a market potato.

Does Subsoiling Dry the Surface?—That depends on the formation of the soil. If the surface soil rests on a clay subsoil that is saturated with water, subsoiling would not make the surface soil any drier. If the surface soil rests on a thin layer of tenacious clay, and this clay rests on a dry gravelly substratum, then subsoiling by breaking up these impervious layers of clay or hard-pan, would dry the surface in the rainy seasons, and render it more moist in summer.

Feeding Parsnips.—Parsnips left in the ground all winter commence to grow early in the spring. Let them be dug as soon as the frost will allow. Put them in the cellar in a box or barrel, and feed out as fast as you need them. They will keep in this way till June.

"Is Land Increasing in Value in the Eastern States?"—We do not see the object of our correspondent who asks this question. We judge, however, that he thinks farms in New England are becoming less and less valuable as newer and richer land is opened at the West. We do not think that mere farm land in New England is advancing in price. But we see no reason why it should become less valuable. Farms that are improving in condition are increasing in value, while those that are not improving are not advancing; those that are running down in condition are running down in price. Why should they not?

Sawdust for Manure.—H. Robbins, Vinton Co., Va. White-oak or other sawdust, unless it be well rotted, is of little use for manure. If it could be used as bedding for cattle, it would be of value.

Geo. M. Patchen.—"L. D. S.," Darlen, Ct., asks if Geo. M. Patchen was a thorough-bred horse, if he was old Patchen, and was old Patchen owned by a man named Walter Mier?—Our memory would require considerable "patching" to reply to these questions, but probably some of our readers can relieve the mind of L. D. S. on these points.

How Many Rows?—In response to this query, in December *Agriculturist*, J. W. H. Little says he has raised corn with forty rows, but thirty six and thirty-eight rows have been common with him. Corn never rose so high as that with us.

A Minnesota Colony.—R. D. Buchanan sends us an account of a thriving colony in Minnesota. It is named the National Colony, the principal settlement of which is at Worthington, a thriving town on one of the beautiful lakes that frequently occur in that State. It seems that the colony is a successful enterprise, materially; and as whiskey is tabooed, and the school-house and the church are the first considerations after the home is founded, there is no good reason why, with fertile soil and a beautiful and healthful climate, it should not be so. We wish them and all such colonies entire success.

Cheapest Way to Make Manure.—Allen Reynolds, Washington Co., R. I., asks which is the cheapest way to get his manure—to keep good cows, with hay at \$30 per ton, and butter at 40 cents per pound, or pay \$6 a cord for it at the livery stables.—We suppose our correspondent raises no hay nor straw, and must purchase these articles to make manure of. Then he must figure in this way: A cow of 1,000 pounds, live-weight, will need thirty pounds of hay daily, or its equivalent, worth 45 cents. Against this the butter is to be set off, which can not be expected to reach more than half a pound a day throughout the year, even with a very good cow. The manure and buttermilk should pay for labor. Then it is seen there must be a loss in making manure in this way, and it would be better to purchase it.

Large Squashes.—C. Shafer, Canajoharie, writes that he raised five mammoth squashes. "Three weighed respectively 160, 133, and 117 lbs.; two smaller ones weighed about 70 or 80 lbs. I purchased the seed from Hovey & Co., Boston, Mass."

How Much Manure from a Ton of Hay?—"A. R.," Davisville, R. I.—A ton of hay, fed to a cow, will produce 5,500 pounds of solid and liquid manure in a fresh state; when dried, this is reduced to 830 pounds. Our own experience is that a cow produces about 60 pounds of manure when eating about three per cent of her live-weight of hay daily, which is rather less than the usual estimate. The earth used need not be added, as it is not manure in any sense, only an absorbent; while if straw or sawdust were added, it would go to increase the manure.

Rooting in Meadows.—"Subscriber," Marsh Creek, Pa., writes that he allowed his hogs to root up an old meadow. He then sowed some timothy seed on the parts rooted up, and found it yielded a good crop of hay.—The same good effect would have been produced by the far more business-like method of harrowing the meadow with a sharp-toothed heavy harrow, and then brushing in the seed. To allow hogs to root up a meadow seems a slovenly practice.

What to Do with Small Potatoes.—Do not use them for seed. Better cook them and mix them with meal for young pigs or sows giving milk. In the spring of the year when other succulent food is scarce, they are especially valuable for this purpose.

Winter in the North-West.—The Chief Engineer of the Northern Pacific Railroad reports on the 27th February that the road so far as it has been completed has been run with remarkable regularity and great freedom from snow or snow-drifts. The temperature during the coldest seasons has not been excessive, although the winter has been unusually severe. On the 26th January, the farmers of the Walla Walla Valley were plowing their fields, and on the Pacific coast the grass has been green throughout the winter, and flowers were in bloom out of doors in January. He also reports that had the line been finished throughout, there would have been no difficulty in operating it constantly the entire distance.

Hand Corn-Drill.—"J. B.," Anoka, Minn., asks us to aid him in finding a hand-drill to plant corn and other seeds.—The best we have used is Emery's Planter, which can be purchased at any large agricultural implement seed-store, or of any of those who advertise in the *Agriculturist*.

Lawns and Lawn-Mowers.—The number of lawn-mowers annually sold is gratifying evidence that our people are finding out that the one essential to the ornamentation of a place, be it large or small, in city or country, is a well-kept lawn. Without this, flowers and shrubs do not show half their beauty. To have a well-kept lawn, a good lawn-mower is necessary. We have tried mowers from the time they were first made in this country, and have found none that for ease of draft and excellence of work are so good as the "Excelsior." The works of the Excelsior Company are

now very extensive, they having absorbed those of a rival establishment, and they turn out machines that leave little to be desired in the way of lawn-mowing.

Rizena.—A new food preparation from rice, under the name of Rizena, has lately appeared. It is an improvement upon the well-known rice-flour. We have used it in several forms with much satisfaction. The following recipes will show a few of the many methods of using this delicate article of diet.

Snowflake Cream.—Take four heaping table-spoonfuls of Rizena, three of sugar, a few drops of essence of almonds or other flavoring extract, with two table-spoonfuls of fresh butter; add one quart of milk; boil from fifteen to twenty minutes, until it forms a smooth substance, though not too thick; then pour in a mold or cups previously buttered. Serve when cold, with cream or any kind of stewed or preserved fruits.

Rain Pudding.—Boil one pint of milk with a little bit of lemon-peel or essence; mix one quarter-pound of Rizena with half-pint milk, four table-spoonfuls of sugar and one of butter; add this to the boiling milk; keep stirring; take it off the fire, stir in the yolks of three eggs, beaten well; butter a dish and pour in the mixture and bake until firm; take the whites of the three eggs, beaten light, with half-cup powdered sugar, and spread over the top; replace in oven to brown. Nice with hard sauce.

Rizena Pudding.—Mix four large spoonfuls of Rizena with half-pint cold milk, and stir it into a quart of boiling milk until it boils again; then remove, stir in butter the size of an egg, and a little salt; let it cool, and add four eggs, well beaten; two thirds of a cup white sugar, grated nutmeg, and half wine-glass of brandy, or other flavoring if preferred; bake in a buttered dish twenty minutes. To be eaten hot, with sauce.

Deaths of Prominent Horticulturists.

Doctor Samuel A. Shurtleff died at his residence at Brookline, Mass., on February 11th, at the advanced age of 80. Doctor S. was one of the early fruit-culturists of the vicinity of Boston, and his enthusiasm continued until within a short time of his death. As late as 1868, he exhibited a number of seedling pears, among which were President and Admiral Farragut.

J. S. Downer, of Fairview, Ky., died on February 10th, at the age of 64. If we mistake not, Mr. Downer was by birth a Virginian, but had long resided in Kentucky, where he was well known as a nurseryman of sterling integrity. He raised a number of seedling cherries, and some of the strawberries he originated have taken a place among our most valued varieties. Downer's Prolific, Charles Downing, and Kentucky were produced by him. Mr. Downer was a fine specimen of a genial gentleman, and the older members of the Pomological Society will, at their next meeting, greatly miss his presence and his counsel.

Samuel Feast, long known as a prominent florist of Baltimore, died not long ago, as we learn from the *Gardener's Monthly*. That journal is without any particulars, and we have seen none elsewhere.

Book Notices.

Manual of Weeds, or the Weed-Exterminator, by E. Mischeer, M.D. Pp. 148. Henry L. Brinton, Oxford, Pa. This work adds nothing whatever to our knowledge of weeds, nor does it give any other than well-known methods of extermination. We are at loss to see the reason for its publication. Price 75c.

The Beauties of Nature combined with Art. By H. A. Englehardt. Pp. 174. John Lovell, Montreal. If the author would learn to write English, he might express himself better than he does in this work. His lists of trees and shrubs are marvellous of inaccuracy.

A Manual of the Cultivation of the Grasses and Forage Plants at the South. By C. W. Howard, Kingston, Ga. A neat pamphlet of 28 pages, presenting in a forcible manner the need of attention by Southern cultivators to grasses and forage plants, and giving practical directions for the work. A valuable contribution, to be had of the author for 25c.

Catalogues Received.

The following catalogues have come to hand since the publication of the list in our last. The crowded state of our columns prevents our giving anything but a list: *Nurseries*.—Ellwanger & Barry, Rochester, N. Y., Fruit

and Ornamental Trees....Dingee & Conard Co., West Grove, Pa....Otto & Achelis, West Chester, Pa....Loomis & Brainard, Painesville, O....E. W. Sylvester, Lyons, N. Y....A. T. Blauvelt & Co., Blauveltville, N. Y....P. H. Foster, Babylon, L. I., N. Y....J. W. Coburn & Co., East Chester, N. Y....John S. Collins, Moorestown, N. J. *Seeds, Flower and Vegetable*.—Vanderbilt Bros., N. Y. City....R. H. Allen & Co., N. Y. City....R. D. Hawley, Hartford, Ct....D. M. Ferry & Co., Detroit, Mich....Crosman Bros., Rochester, N. Y....Hugo Beyer, New London, Iowa....Hovey & Co., Boston, Mass....T. Cadwallader & Bro., Richboro, Pa....Nicholas Cole, Pella, Iowa....Kern, Stever & Co., St. Louis, Mo.: this firm publish very full catalogues in the English, German, and French languages.

Implements and Fertilizers.—The dealers in seeds generally keep implements also. H. B. Griffing & Co., N. Y. City....Jeremy Lake, North Easton, Mass., Forking Spades....H. N. Peck & Co., Rochester, N. Y., Rochester Berry-Baskets.

Flower, Bedding, and Other Plants.—Loomis & Brainard, Painesville, O....Miller & Hayes, Philadelphia, Pa....Edgar Sanders, Chicago, Ill....W. J. Hesser, Plattsmouth, Neb....W. B. Woodruff, Westfield, N. J....P. J. Berckmans, Augusta, Ga....George Such, South Amboy, N. J....Olm Bros., Newark, N. J....John Saul, Washington, D. C....Ellwanger & Barry, Rochester, N. Y....W. F. Porter, Warner, O.

Poultry.—D. B. Corey, Westfield, N. J.

Bees.—Advice to Beginners.

BY M. QUINBY.

The "Christian Union," having a department for Farm and Garden, says: "A man in New Hampshire bought four swarms of bees ten years ago, and now has an income of \$1,200 a year from honey. Go buy four swarms of bees, young man." What is the meaning of this? Is it a burlesque on teaching bee-keeping in one short paragraph; or is it sober earnest? As well say "a man in New York bought one hundred acres of land, and fifty cows, ten years ago, and now has an income of \$2,000 a year from cheese. Go and buy a farm and cows." What is gained? Is not such advice a damage to the reader? We want the other side; and that, alone, would be equally unfair. To say that a man bought bees or bought cows ten years ago, and now has no income or has one does not profit us. But when we have the causes detailed that have led to these results, either favorable or otherwise, we have a key to success.

John has a desire to keep bees. Let him take measures to know his business, examine the subject, and what may from such examination seem unfavorable, is often an advantage. If he has been trained to think that the simple act of buying four hives of bees will secure a competence, let him be undeceived. If he is sufficiently credulous to take the marvelous tales of the patent-vender, that his particular hive, and no other, will make him rich without an effort on his part, let him be undeceived. If he is indolent, and hopes to escape the necessity of labor by procuring bees to do it for him, I beg that he will not disgrace the business by underskipping and failing. If he feels that he has an exemption pass—"bees never sting me"—and supposes that he will have no case of sufficient provocation for them to sting, and bases his fitness on that alone, he will feel differently after a little experience. If he dare not risk the possibility of a sting when protected as he can be now, or lets the fear of one prevent the performance of any duty until tomorrow or next week, he will find the profits small. With bees, more than many other things, very much depends on doing proper things at the right time. A good way to test his qualifications for bee-keeping is to examine his way of doing things in the past. If he has been so unfortunate in his training as to form habits of indolence or negligence in his farming operations, until all chances of remuneration are lost—not so much from non-performance as for not performing the proper thing at the proper time, and failed to make it pay in consequence—he will not be likely to do better with bees. If his training has induced a study of natural history, and he is familiar with the habits of many things about him, and of bees in particular, or has a wish to become familiar, and has energy to carry a good resolve into effect, and can spare the time necessary from other duties to do it, I would advise a few bees, to begin. If he is conversant with the best books and papers on the subject, which he should be, he will not need much instruction until he gets the first colony. Should he begin in spring, which is the best time, let him get some one better acquainted with them than himself, if possible, to make the first purchase. In the absence of such assistance, I would say, first, Italians, in movable combs, are most desirable. Select from a large number, if possible. The best stocks are not the heaviest. A large colony is very important. There should be bees in the spaces between

fire or six combs, at least. To ascertain this point in the box-hive, turn it bottom up, without jarring, some clear, cool morning, and let the sun shine directly into the hive. If the stock is an old one, there is another point to be ascertained at this time; see whether it contains foul brood—a disease to be described another time. It will show itself now by some of the breeding-cells, outside the cluster being sealed, and containing dead larvae. Never take such a stock, even as a gift. If it is a movable-comb hive, it may be examined on a warm day. I forgot to say that it is well to be protected with a veil over the face, and gathered around the throat, and use a little smoke to keep the bees quiet; lift out the combs, and examine one by one; the bees will be a little more scattered on the combs than when cooler. One point more can be ascertained with movable combs; that is, if a queen is present; all thrifty hives should now have brood in all stages, from the egg to the mature bee; the brood would indicate her presence without the trouble of finding her. If black bees, it might take some time. A half-dozen pounds of sealed honey—which must be guessed at—will be sufficient, if the spring is favorable; the age of the combs, if anywhere under twelve years, should be no objection; if clean, and not much moldy, they will do. Bees may be moved this month with less danger of breaking combs than when heavier. The box-hive must be turned bottom up, and covered with wire-cloth; heavy factory-muslin will do for a short time, but they will bite through in two or three days, sometimes; they should be carried on springs. When changed to a new locality at this season, the distance should not be less than a mile. Let the apiary be protected from the prevailing winds, and the hives face east, south-east, or south, when possible, and conveniently near the dwelling, as it is well to look at them every day; especially until familiar with their movements. By observing closely when all is healthy, anything wrong is more readily detected. Better look at them fifty times for nothing, than fail to see a mischief just commenced. Bees can be moved in summer when kept out of the sun, and well ventilated, when the distance is two miles or more. New swarms before flying out after being hived, can be moved any distance from two feet to many miles. Try and become better acquainted with the pets every day; study their habits and disposition in health and disease, and means of pacifying them, until it is easy to go into their very midst without a supreme dread of stings. If they are in the box-hive, it will be necessary to transfer to the movable frames, without any dread of stings to interfere. Get everything in readiness now; think what is needed, and have it at hand, just as if it were any mechanical operation which is perfectly familiar. We will try and describe the operation and hive next month.

The Late Professor John Torrey.

The *Agriculturist* goes to a large number of people who love our native plants; these are familiar with the name of Torrey, and know how much he has done in describing and naming the plants of the whole country. Our paper is also read by the majority of medical men, not only in this country but wherever American physicians have found a home. These need not be told who Doctor Torrey was nor how large a share he had in the education of the most eminent medical men of the present day. Both these classes, those who have known him only by his works, and those who have been instructed by him, will be glad to see the portrait which we place upon our first page.

Doctor Torrey was long regarded as the "Father of American Botany," and justly so, as his labors in his favorite pursuit extended over a period of more than fifty years. We have not space to enumerate his various works. Perhaps the best known are his "Flora of the State of New York," in two large volumes, and the "Flora of North America," in which last Prof. Gray was a co-laborer. His more important and original work is to be found in the Smithsonian Contributions, and in the various Government Railroad and other explorations. Botanically, Dr. Torrey is commemorated by a genus of fine evergreens related to the Yew. The original species of *Torreya* was discovered

in Florida, but others have since been found in California, Japan, and South America, and botanists of widely separated countries will, as long as their science endures, be reminded of one of its most devoted followers. The twigs of the Florida species of *Torreya* are appropriately used as a border to the portrait.

Although he accomplished such a vast amount of botanical work, this was done purely for the love of the science, and outside of what were his regular occupations. During his career he was Professor of Chemistry at West Point, Professor of Chemistry and Botany at the N. Y. College of Physicians and Surgeons, Professor of Chemistry at Princeton, and Chief Assayer at the United States Assay Office. His eminence as a chemist led to his selection for the last-named post, which he filled at the time of his death. He was often called into confidential consultation by the U. S. Government, especially at the time when our national currency was first issued, and much of our security against counterfeits is due to his ingenious suggestions.

Doctor Torrey died on March 10th, in the 77th year of his age. In giving his portrait we are well aware how difficult it is to satisfactorily represent him in this manner. Those who knew him will think of him as they have seen his countenance lighted by benevolence, or bright with enthusiasm. The photographer can only make a map of the face; the soul that illumines it is beyond the reach of the art.

Were we to write all that we feel in regard to Doctor Torrey, we should say that which he, could he speak, would forbid. In brief, we never knew a truer friend nor a finer specimen of a Christian gentleman, not the least of whose useful examples was, that he whose heart is right need never grow old. At the age of nearly 80, Doctor Torrey's mind was as fresh and vigorous, and his affections were as warm, as they were in his younger days.

The funeral services were held at the church of the Rev. Dr. Hastings, in 42d street, on the 13th of last month. The church was filled by the friends of the deceased, and the services were most appropriate and impressive. The discourse of Dr. Hastings was a most eloquent tribute to the value of the life that had departed, and in such perfect keeping with the occasion that we hope it may appear in print.

A Trochar for Cattle-Men.

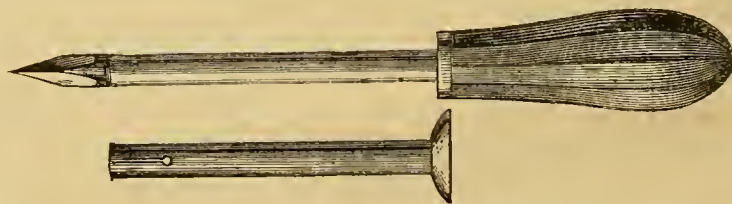
In June of last year we gave illustrations of a Trochar and Cannula to be used in ringing a bull, and on page 13 (January) and page 97 (March) of the current volume have described the use of this apparatus in relieving hoven in cattle. These articles have brought out a large demand for trochars, and failing to find just the right kind among the makers of surgical implements, we have induced an establishment to undertake their manufacture. We give our engraving of last year with the trochar modified and improved as to the point. These articles are now in the trade, and may be had of most dealers in agricultural implements. Those who can not get them from dealers can receive them from this office, post-paid, for \$1.

SMALL BREED OF PIGS.—A correspondent of the *American Agriculturist* in Southern Illinois, wishes information in regard to the Essex and other small breeds of pigs. He will find the matter very fully and very fairly discussed in "Harris on the Pig." All that we have space to say at present is that this term "small breed" has no fixed and definite meaning. The Essex are classed as a Small Breed, and yet Mr. Harris told us recently that he had just killed a thorough-bred Essex that dressed 575 lbs.

The truth of the matter is, that a breed of pigs can be made "small," "medium," or "large," just as a skillful breeder may determine. The Essex are usually a small breed. They are distinguished for fineness of bone, smallness of offal, early maturity, and fattening qualities. There is probably less offal in a well-bred and well-fed Essex, than in any other breed of pigs. They are also remarkably quiet and gentle, and are consequently "easy keepers." We can safely recommend them for crossing with the larger and coarser breeds.

Soiling Crop for Dry Hot Summers.

Mr. J. A. Anderson, of Shelby Co., Tenn., communicates to "Ogden Farm" the following on the question of soiling. The complaint having been made that the great need in this industry is a good crop for dry hot weather, Mr. Anderson is convinced that the southern "Cow-pea" is exactly what is wanted, and that his experience with it at the South has been sufficient to make it safe for him to recommend it for Northern use. The hay made from it he considers better than any other that he knows. Most of the varieties of this pea would not fully mature in the short summers of the North, but the majority of them would become sufficiently developed to make good soiling crops, or for hay. The seed is sown at the rate of from two to three bushels per acre, and while still in bloom, but when the most advanced pods are about half-filled, it may be mown with a machine and cured with about the same treatment that is given to clover. Being cut at that early stage of its growth, the rich substances contained in the leaves and stem are arrested there, and every hay-eating animal relishes it apparently better than any other sort of winter fodder. And for green soiling, it may be allowed to grow until there is danger of frost (the least frost kills it). It will then be eaten freely, even though it may have become fully matured, though, of course, when cut at this ripe stage, the haulm is less nutritious than when cut in its green condition. Mr. Anderson considers these pea-vines



TROCHAR AND CANNULA.

doubly as valuable as green-corn fodder for making butter, and states that they will flourish in a drouth that will wither and destroy late-sown corn. There are thirty or forty varieties of this pea, some of which could not be advantageously grown at the North. Those called the "Speckle" and the "Whip-poor-will," of which the seed can readily be obtained from

Virginia or the Carolinas, are believed to be worthy of an experiment, even in New England. We have no question that this information is of the greatest value for those living at the South who care to try the system of soiling, or who find it difficult to obtain sufficient butter-making forage for winter. Whether the Southern pea will fill the wide gap in Northern practice and give as good succulent vines for our driest weather, can only be determined by experiment. Our information on the subject is only sufficient to justify us in recommending a trial.

Ogden Farm Papers.—No. 38.

One principal effect on my mind of what I saw in England, was a reinforcement of my belief that it rests with farmers themselves to determine whether they shall take as good a position, socially, financially, and personally, as men of other professions. In conversing with the agent of a large estate in the eastern part of England concerning the renting of the lands under his charge, I was informed that while there are always large numbers of excellent tenants with ample capital anxious to hire such farms as may become unoccupied, the sort of men to whom it is considered desirable to rent land will not take a place unless the house and domestic offices are in good condition. That is to say, they must have pleasant rooms, agreeable views, one or two bath-rooms, butler's pantries, conservatories, and much that is here considered entirely too fanciful and luxurious for a plain farmer.

The meaning of this is that these are men of character, who are proud of their position, and are accustomed to have their families as well quartered, and to bring up their children with as good advantages, as though they were prosperous merchants or manufacturers. I passed some time in the hunting-field, and was struck with the fact that a large number of those who "follow the hounds"—well-dressed and well-mannered gentlemen—are practical farmers, who consider themselves as much entitled as their landlords and their richer neighbors to the enjoyment of this luxurious and costly sport. In fact, throughout the country, traveling on the railways and elsewhere, it was evident that the farmers consider themselves, generally at least, as good, if not rather better, in position than manufacturers or shop-keepers of the same wealth.

I am well aware that many American farmers, and perhaps some of my own readers, will exclaim, "Vanity of vanities, all is vanity," etc., and will think that this comparative extravagance of life, and the devotion of two or three days a week throughout the winter to galloping across the country after a pack of fox-hounds, is a very unworthy standard for an agricultural writer to suggest to his readers. With due respect to their prejudices, I do not think so. I wish there was a good deal more attention given to field sports in this country than there is, but I notice this only as an example. The main point is, that so long as a farmer is contented to drudge away six days of every week, and to think of nothing but the making of money, the improvement of his farm, and the establishment of his sons in some position where they may make money, we need never expect a very high development of what alone is entitled to be called civilization among our agricultural classes. Life is not made up of hard rules and hard work. Recreation and a certain amount of luxury in the household are

civilizing influences to which I am always glad to see our farmers subjected, so far as their circumstances allow; and it will be an encouraging sign when those who are obliged to drudge from year's end to year's end set before themselves the aim and hope of more elegance and comfort in their living, and more amusement for the entertainment of their unoccupied hours.

"All work and no play makes Jack a dull boy," and the greatest preventive to the advancement of American agriculture is that the average American farmer is such a frightfully dull boy.

Another thing that struck me in England, and which indicated an encouraging frame of mind on the part of English women, was the almost uniform tidiness, comfort, and beauty of English farm-houses. It is difficult in that climate to have a house, of whatever sort, that is not made more or less picturesque by the luxuriant growth of ivy and ornamental plants, which come almost unbidden. The traveler sees everywhere, in the well-kept vines and shrubs, even about the old straw-thatched, low-studded, diamond-paned farm-houses that have been brought on from the last century, and more especially about the modern farm residences, great evidence that an exhibition of comfort and taste is considered a very essential part of the management of the establishment. English women do not confine themselves to wearing flowers in their Sunday bonnets—they have them about them, in their door-yards, and in their windows and conservatories, as though they considered them as necessary to their self-respect and to the proper tidiness of their establishments as any mere personal decoration.

We in America are very proud of our large barns, and I have been always in the habit of patting myself on the back over what I consider a very good one at Ogden Farm. I was surprised at first to see an almost entire absence of barns for storing hay and grain in England, where rain probably falls on twice as many days in the year as it does with us. The more I saw and thought about it, however, the more I came to the conclusion that there is much to be said on their side of the question. They save the cost, and it is a very considerable cost, of building hay-barns. Their stacks are far enough apart for the rest to be saved if one takes fire. They are very handsomely made, placed on wooden or iron frames about two feet above the ground, are considerably larger at the top than at the bottom, and are nicely thatched with wheat-straw. Some are round and some are square. I saw in one instance a very handsomely-made and well-thatched stack of hay containing over one hundred tons, and on the Earl of Warwick's Sewage Farm there was a row of twenty-two stacks, containing each about five hundred dollars' worth of wheat, all so well built and so closely thatched that they might stand there for ten years without the least danger. Whether the stacking of hay in England accounts for its superior quality I do not know, but although the last season was an unfavorable one, it seemed to me that all the hay I had occasion to observe was better than the best we usually see at home, greener, and more savory. Owing to the projecting top and thatch of the stack, there seemed no appreciable injury to the hay from weathering.

One universal custom in England, which must be of great value, is denied to us of the North by reason of our severe winter climate,

but I commend its consideration to those of my readers who live south of Pennsylvania, where snow and frost are infrequent and are of short duration. I refer to the feeding of turnips and other roots on the land, the entire cost of harvesting being saved, and the manure being efficiently distributed without labor. When the crop is grown, a small part of the field is fenced off with hurdles, which are very simple frames (made generally of rough poles) about eight feet long and three feet high, the posts being pointed to be driven into the ground with ease. The area to be fed off is inclosed, and a certain number of sheep are confined within the hurdles. They get their chief living from the turnips, and are kept on that piece until they have eaten down into the ground, consuming roots and all. In addition to the turnips, they are usually fed twice a day with Indian-meal, oat-meal, or some other grain, and they occasionally receive a little hay. When the piece occupied has been eaten over, three sides of the inclosure are removed so as to take in the next section, and that is treated in the same way. A greater or less proportion of the food consists of grain, according to the degree to which it is desired to manure the land. Mangel-wurzel is frequently fed in the same manner, though only during the early part of the season, before there is danger of frost. Mangel-wurzel itself is often used in the place of grain for feeding sheep in hurdles, to manure the land, and even land on which these roots themselves have been grown is hurdled with sheep, the roots being taken out of the banks where they are stored and fed in the inclosure. When the piece occupied has been sufficiently manured, the sheep are moved as though there were turnips to feed, and the land is thus manured section by section.

This part of the treatment it is quite open to all of us to adopt, and there is no reason why we may not make a very important use of the service of sheep in the distribution of manure in this way; though in our severe climate it would be necessary to furnish some sort of shelter. I have seen a plan, I think in the *Agriculturist*, of a movable sheep-shelter, a sort of shed built on runners, which, when empty, may be drawn by a horse from place to place. In addition to this, there should be two or three troughs in which to put the feed, and these should be daily moved from one part of the inclosure to another. At the same time, locks of hay should be thrown about in different places, to cause the sheep to spread, and prevent their dropping their manure mainly by the shelter and near the troughs. The floor of the shelter should be solid, so that the manure which would naturally accumulate there in greater quantity may be thrown about with shovels.

My notion of English plowing was somewhat changed by my observation. It must delight any farmer to see absolutely straight furrows stretching across wide fields, along mile after mile of his journey. Nothing more beautiful in the way of mechanical work could be imagined, and such exactness is hardly possible except in a climate where the plowman is allowed to continue his task throughout every month of the year, rarely doing any other work. Whether these very straight lines have any economical value is doubtful; as encouraging neatness and skill, they are certainly important. My admiration was a good deal modified by a constant observation of the performance of the work. The English plows, made of iron, are probably more than four

times as heavy as ours. They run no more deeply, they cut no greater width, and they do run much more slowly. They employ, and I fancy they require, much more power than ours. For instance, I saw in no case fewer than three enormous horses before a plow, frequently five, usually driven tandem, with a man at the plow, and a boy to drive. The furrow was generally rather under than over six inches deep, and not more than eleven or twelve inches wide. The soil is often very heavy, it is true, but not more so than much of our own, and I have often seen three well-bred, active American horses plow out an equal width and depth, with pretty nearly double the speed of these sluggish, beefy English cart-horses. We, therefore, do our plowing more cheaply, practically as well, and certainly fifty per cent faster. The mere fact of speed is very important, for when the soil is in good condition, its disintegration is much more complete when the furrow is rapidly thrown over. With so much in English agriculture to excite one's admiration and envy, it was rather consoling to my patriotism to be able to think that we are their superiors in the important matter of plowing—except by steam; that, alas! seems to make but slow way in this country, and nothing offers more advantages, if we can only afford to adopt such expensive machinery.

The great question in all the good agriculture of the world is the manure question. It is even more important in England than it is as yet with us, but they resort almost universally to a means of securing it of which we may make much more general use; that is, in the manufacture of meat by the use of grain not grown upon the farm. As a general rule, farm products in England are not much higher in price than in our Eastern States. Meat retails for just about the same price, yet every good farmer makes it part of his regular business to buy beef-cattle or sheep, and to buy American corn, or linseed, or cotton-seed, with which to feed them. The demand in England for American pork is always good and reliable; it pays, therefore, to import corn from Illinois to fatten pork for the London market. If, as one of our writers has said, "fifteen bushels of corn can be packed into a pork-barrel," it must be much the better plan for the Illinois farmer to convert the corn into meat on his own farm, and send the product to market at much less cost for transportation, especially if he has begun to appreciate the value of manure. Here in the Eastern States, we have to pay more for our grain than the Western man does, but less than the Englishman, and there is hardly a limit to the extent to which we may profitably manufacture meat for that market (should our own soil give out, which is not likely), making an immense amount of the most valuable manure for our own fields.

As a general summing up of the impressions brought home from my trip, I would say that I am thoroughly confirmed in my old faith that the only good farmer of our future is to be the "high" farmer, and I desire to reinforce, as far as possible, all my previous statements to the effect that the great benefactor of the world is he who makes four blades of grass grow where only two grew before.

I have a neighbor who has produced these four blades. I offered him the other day one hundred dollars for the summer rent of two acres of new grass-land (clover and timothy).

He said that he could make double that by devoting it to sheep, and I finally told him, as he is a fair man, that he might make whatever allowance he thought fair for the cost, risk, and management of his sheep operation, and I would give him the balance, to have the land this summer. I have no idea how much I shall have to pay for it, but I am confident that, as it lies near my barn, I can, by getting two or three soiling crops from it, make money by my transaction.

Hog-Dressed Calves.

BY J. R. HELFRICH.

[The practice of sending calves to market in the state called "hog-dressed"—i. e., with the skin on—is yearly increasing. Farmers can butcher their own calves and send them to market, where they will arrive in a much better



A CALF HOG-DRESSED.

condition, and bring to the producer better prices, than if taken alive. In dressing calves in this manner, there is in this, as in most other things, a right and a wrong way of doing it. Two neighbors may send equally good calves to market, and one receive much larger returns than the other. Of course, the one who receives small returns will accuse the commission merchant of fraud, not knowing that some apparently trifling matters materially affect the price. That our readers may know just how calves should be dressed in order to bring the highest price in the New York market, we have requested Mr. J. R. Helfrich, Commission Merchant, 92 Barclay street, who probably handles more than any other dealer, to give us an article embodying the essential points.—Ed.]

The price which hog-dressed calves will bring depends much upon their condition and appearance when they arrive at the market. Full one half of the calves bring from twenty-five to fifty per cent less than they would have sold for had they been properly handled and dressed. Recollect that all calves weighing less than 60 pounds are, in the New York market, liable to be seized by the Board of Health, as are all that are sour or have the hind-gut left in them. If calves are sent with their heads and legs on, or head-skins or leg-skins are left on, if the haslet (liver, lights, and heart) is left in, all and each of these have to be removed before the

calf can be sold, or a corresponding reduction made in the weight. The difference thus caused between the shipping and the selling weight is often a source of great dissatisfaction.

Calves before killing should not be chased, as running them about makes them feverish, and when killed the flesh and kidneys look red and bloody inside. The animal should remain at rest several hours before it is killed. To kill the calf, tie a rope to the hind-legs and hang it up clear of the ground or floor; then cut the head and skin off close behind the ears. When thoroughly bled out and dead, put in the gambrel-stick, and cut off all the legs at the knee-joints. Then open the belly, making the cut just behind the kidneys, and running it down to the brisket-bone. Take out the liver, lights, and heart, and remove the intestines or guts, taking care to remove the hind-gut by making a cut around the anus or vent. If the calf has been properly bled it will be clean inside and free from blood. It should then hang until thoroughly cooled off and the flesh set. This is an important point. A calf should hang from eight to twelve hours after killing in a cool and dry place where it will not freeze. If shipped soon after killing, and before the flesh has "set," the calves will reach the market in a soft, flabby condition, or "mussed" inside, and their sale consequently injured. When the calf is properly cooled, it should be marked for transportation by sewing a tag to the bag-skin between the hind-legs. In this position the tag is not likely to be torn off, as it would be if put upon the belly, where it might fall inside and get wet or bloody, in which condition it may be easily torn or effaced. The principal commission houses furnish by mail good, strong, cloth-lined paper tags, with their address and that of the shipper plainly printed on them.

Never split the calf open between the fore and hind legs, as the cut surface dries out and turns black, and the sale is materially injured.

A calf should never be killed upon the ground, as the blood does not all run out, but remains in the veins, making the flesh look dark, and soiling the inside when dressed. Some city butchers partially bleed the calves the night before killing, as it makes the flesh whiter. In case the calf is not properly bled, and upon opening it blood is found upon the inside, it should not be washed out or rubbed, but taken out by means of a sponge or a towel dipped in clear cold water, wrung out dry, and pressed against the blood.

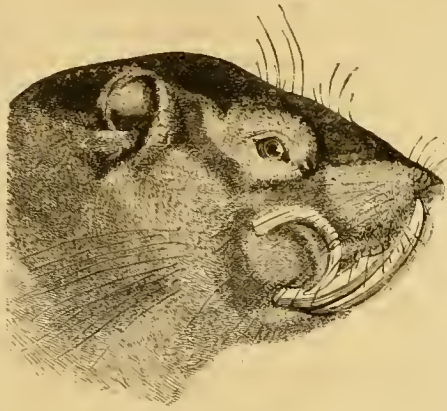
The calf should be hung up evenly by both hind-legs, and remain until completely cold, otherwise it will set out of shape. The engraving shows the manner of hanging, as well as the position of the slit and the point at which to attach the tag.

Be sure and send invoice by mail, giving the number of calves and weight of each calf, as we daily receive several calves from which the tags have been torn, from not having been properly put on. These are sold, and go into the "unknown" account awaiting a letter from the shipper. Calves weighing from 80 to 120 pounds, when dressed, are the most suitable for first-class veal, providing they are fat and neatly dressed, and show nice white flesh and kidneys. Those weighing from 150 to 200 pounds are generally termed "grassers" (unless wholly fattened on milk), and will not bring within half or two thirds as much as first-class veal, they being too large for veal and not heavy enough for beef. They are mainly bought up by manufacturers of Bologna sausages.

A Curiously Deformed Woodchuck.

In some animals, when they live to a great age, the teeth become unusually developed, as we may see in old swine and in pictures of the wild boar. Sometimes an old rat is caught with remarkably elongated teeth, but these and other rodents or gnawers usually get disposed of before they show the deformities of old age. Not so with the Woodchuck or Ground-hog of which we present a portrait. This specimen was caught in North Kingville, Ohio, and we are indebted to Mr. F. M. Bugbee for a cleverly drawn sketch of the animal. The lower teeth are one and three fourths of an inch long. The upper teeth are much longer; one, as shown in the engraving has passed through the cheek and curved downwards. This tooth measures about four inches in length; the companion tooth to this was rather shorter, and had penetrated the roof of the mouth. Our correspondent truly calls this an "unfortunate woodchuck," as in this condition it could not have found much enjoyment in its raids upon the cabbage-fields.

were received with the greatest favor. Probably no single race of cattle has served so useful a purpose in the economy of a nation as the West-Highland, nor has any other held its own more



DEFORMED WOODCHUCK.

successfully in competition with other races than this. Even now it holds a high position in the estimation of the farmers of North-western Scotland, as being precisely the cattle adapted to their mountain pastures. Rough-haired, hardy in constitution, active, easily fed, it is particularly at home on its bleak pastures; its straight back, short legs, broad chest, breadth of loin, depth of rib, and its square and solid form, render it acceptable to those who look for choice beef, while its fine eye, short, broad, well-bred

West-Highland Cattle.

Few people who are at all acquainted with England and Scotland, or who have read the standard literature of these countries, either in history or fiction, are unfamiliar with the term "black cattle." They were at one time the common currency of Scotland and the "border

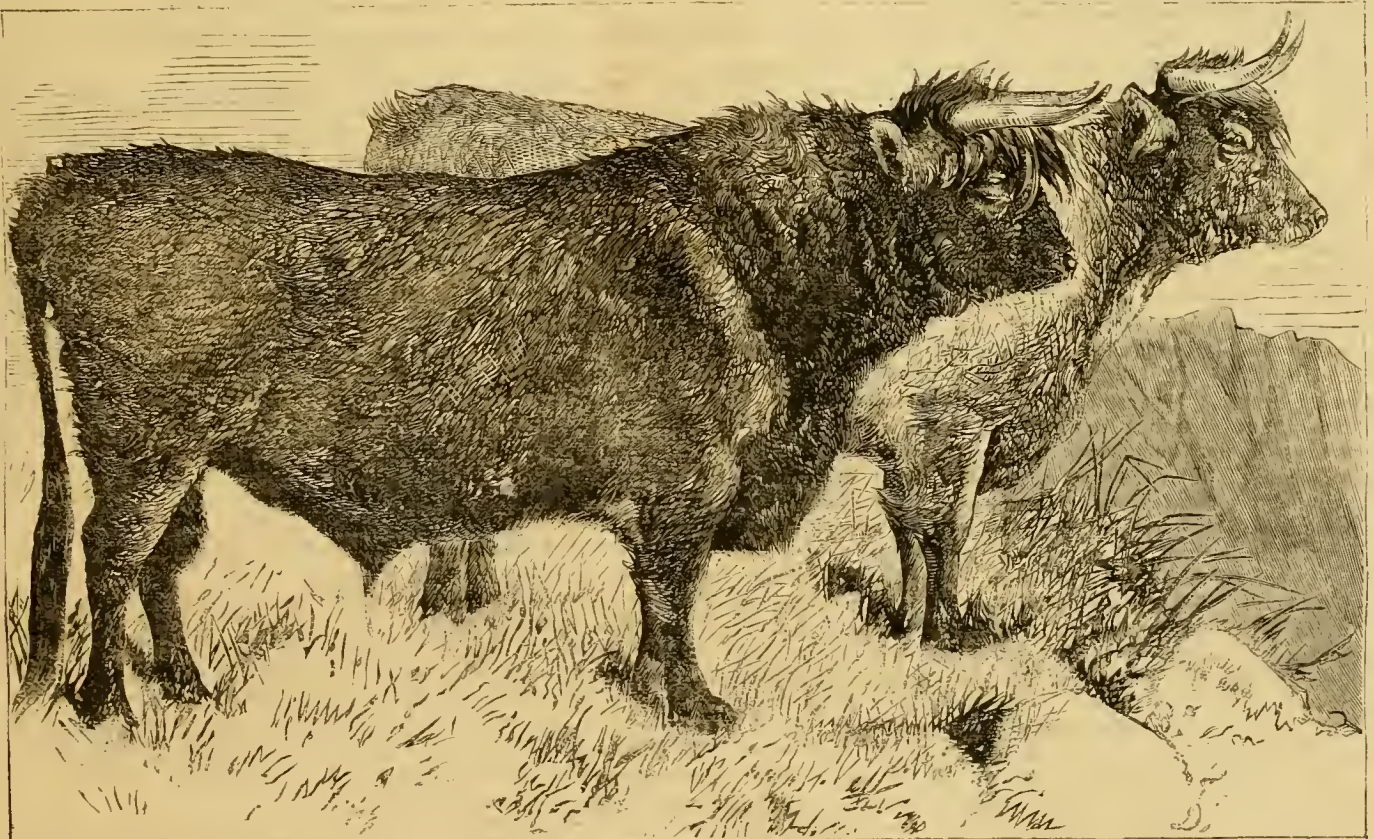
Walks and Talks on the Farm.—No. 112.

"Why do you recommend piling manure?" asks a neighbor. "What possible good can it do? Does it add anything to the manure? Does it not rather waste a good deal of ammonia?"

This is too big a subject for me to talk about. But I may say briefly that there is no necessity for losing ammonia. The truth is that fresh manure, either liquid or solid, contains no free ammonia. The ammonia is produced from the nitrogenous compounds by fermentation. But during fermentation organic acids are also produced, as well as ammonia, and these acids unite with and hold the ammonia from escaping. There need be no ammonia lost from a well-managed heap of manure. There is no necessity for adding sulphuric acid or sulphate of iron or sulphate of lime to a manure-heap.

The Deacon and many other good farmers recommend applying long, fresh, strawy, or "stalky" manure to clay land for the purpose of making it more loose and porous. There is some truth in this idea. But, for my part, I think it is far better and cheaper to make the land loose and mellow by thorough cultivation.

John Johnston, who has a far heavier clay soil than the Deacon, says he has found by actual trial that one load of well-rotted manure applied as a top-dressing to grass land in the autumn, and the land plowed up and planted to corn in the spring, is worth as much as three loads of fresh manure plowed under.



GROUP OF WEST-HIGHLAND CATTLE.

country" in the north of England; the "Rob Roys" of those stormy times spent their time in "lifting" them, and when caught and imprisoned by their brother-thieves, ransomed themselves with a hundred head or so of them. In later years thousands of droves yearly found their way from their rocky northern pastures to the graziers of Southern England, and thence to the meat-markets of London, where they

muzzle, and its long coat of hair of rich black, red, dun, or brindled color, give to it a value in the eyes of those who desire attractive appearance. Their rugged constitution fits them exactly to occupy our great Western plains, and as their cross on the Shorthorn makes the very best of feeding stock, and produces the very choicest beef, it would seem as though that was a position destined by circumstances for them.

Mr. Lawes, on his clayey soil at Rothamsted, has grown 30 crops of wheat year after year on the same land. One plot has received 14 tons of barn-yard manure per acre every year, and yet the produce from this plot is no larger and in fact is frequently much less than from a few hundred pounds of artificial manures containing far less nitrogen.

For nineteen years, 1832 to 1870, some of the

plots have received the same manure year after year. The following shows the *average* yield for the nineteen years:

	Wheat per acre.	Straw per acre.
Plot 5.—Mixed mineral manure, alone.....	17 bus.	15 cwt.
" 6.—Mixed mineral manure, and 200 lbs. ammoniacal salts.....	27 bus.	25 cwt.
" 7.—Mixed mineral manure, and 400 lbs. ammoniacal salts.....	36 bus.	36 cwt.
" 9.—Mixed mineral manure, and 550 lbs. nitrate of soda.....	37 bus.	41 cwt.
" 2.—14 tons farm-yard dung.....	36 bus.	34 cwt.

The 14 tons of farm-yard manure contained about 8,540 lbs. organic matter, 868 lbs. mineral matter, and 200 lbs. nitrogen. The 400 lbs. of ammoniacal salts and the 550 lbs. nitrate of soda each contained 82 lbs. of nitrogen; and it will be seen that this 82 lbs. of nitrogen produced as great an effect as the 200 lbs. of nitrogen in barn-yard manure.

Similar experiments have been made on barley, with even more striking results. The plot dressed with 300 lbs. superphosphate of lime and 200 lbs. ammoniacal salts per acre, produced as large a crop as 14 tons of farm-yard manure. The average yield of barley for nineteen crops grown on the same land each year was 48 bus. and 28 cwt. of straw per acre on both plots. In other words, 41 lbs. of nitrogen, in ammoniacal salts, produced as great an effect as 200 lbs. of nitrogen in farm-yard manure! During the nineteen years one plot had received 162,260 lbs. of organic matter, 16,492 lbs. of mineral matter, and 3,800 lbs. of nitrogen; while the other had received only 5,700 lbs. mineral matter and 779 lbs. of nitrogen—and yet one has produced as large a crop as the other.

Why this difference? It will not do to say that more nitrogen was applied in the farm-yard manure than was needed. Mr. Lawes says: "For some years an amount of ammoniacal salts containing 82 lbs. of nitrogen was applied to one series of plots [on barley], but this was found to be too much, the crop generally being too heavy and laid. Yet probably about 200 lbs. of nitrogen was annually supplied in the dung, but with it there was no over-luxuriance, and no more crop than where 41 lbs. of nitrogen was supplied in the form of ammonia or nitric acid."

It would seem that there can be but one explanation of these interesting facts. The nitrogenous matter in the manure is not in an available condition. It is in the manure, but the plants can not take it up until it is decomposed and rendered soluble. Dr. Voelcker analyzed "perfectly fresh horse-dung," and found that of *free* ammonia there was not more than one pound in 15 tons! And yet these 15 tons contained nitrogen enough to furnish 140 lbs. of ammonia.

"But," it may be asked, "will not this fresh manure decompose in the soil and furnish ammonia?" In light, sandy soil I presume it will do so to a considerable extent. We know that clay mixed with manure retards fermentation, but sand mixed with manure accelerates fermentation. This at any rate is the case when sand is added in small quantities to a heap of fermenting manure. But I do not suppose it would have the same effect when a small quantity of manure is mixed with a large amount of sand, as is the case when manure is applied to land and plowed under. At any rate, practical farmers with almost entire unanimity think well-rotted manure is better for sandy land than fresh manure.

As to how rapidly, or rather how slowly, manure decomposes in a rather heavy loamy soil,

the above experiments of Mr. Lawes afford very conclusive but at the same time very discouraging evidence. During the 19 years 3,800 lbs. of nitrogen and 16,492 lbs. of mineral matter in the form of farm-yard manure were applied to an acre of land, and the 19 crops of barley in grain and straw removed only 3,724 lbs. of mineral matter and 1,064 lbs. of nitrogen. The soil now contains, unless it has drained away, 1,736 lbs. more nitrogen per acre than it did when the experiments commenced. And yet 41 lbs. of nitrogen in an *available* condition is sufficient to produce a good large crop of barley, and 82 lbs. per acre furnished more than the plants could organize.

I have not time to discuss this matter; but it is certainly well worth considering whether we can not discover some method of fermenting manure so thoroughly without loss that the nitrogen which it contains shall be rendered soluble and available before it is spread on the land. The soil is so conservative that when it gets hold of manure it is very slow to part with it. It holds it with almost a miserly grasp. It is fortunate for you and for me that such is the case, or else the natural manure which the leaves of the original forest spread over our land before it was cleared would long ago have been entirely exhausted. The practical difficulty in fermenting manure without loss is to keep it moist enough without allowing any of the liquid to leach out. If this can be accomplished, the more we reduce our manure by fermentation the better.

Depend upon it, many valuable discoveries in regard to the science and practice of agriculture will be made in a few years. Facts are rapidly accumulating. Many of the most intelligent farmers think science has done little for agriculture. At first we expected too much from agricultural chemistry. Now we are expecting too little. I wish I could get every farmer's son in the United States to study Prof. Johnson's two books, "How Crops Grow" and "How Crops Feed." They would then be able to appreciate the importance of the new discoveries which are being made every year, and which it ought to be the duty of our agricultural papers to publish and expound. As it now is, we dare not "talk science" half as much as we would like. It is no use publishing scientific articles if they are not read.

I am inclined to think, however, that American agricultural papers publish more scientific matter than those of England. Just now, they treat us to column after column, and page after page, week after week, of communications and speeches in regard to the repeal of the duty on malt. Then we have long reports of the doings of their "Chambers of Agriculture," which are about as interesting reading as a last year's almanac. Occasionally there is a practical article of some value. The other day there was one on swine, and I commenced to read it, thinking I might find something new. I found, however, that it was copied from "Yonatt on the Pig," written years and years ago! Then we are treated to a series of articles on sheep, nearly the whole of which are copied from "Morton's Cyclopaedia of Agriculture," published in 1855. The editor of the "Chamber of Agriculture Journal," an able writer and a good practical farmer, speaks of "a recently published American work on Shorthorns, with a perusal of which we have been favored through the kindness and courtesy of Mr. J. Thornton." We do things differently on this side of the water.

But we have to acknowledge that the English farmers beat us in raising crops and in breeding cattle, sheep, and pigs. They have more available capital, better and steadier prices, and cheaper and more skillful labor. Here our best men soon get farms for themselves. Our capital is locked up in the land, and we have such a large area that one or two good crops flood our markets. We shall understand our situation better by and by. We shall not be so much given to change. We shall not rush into growing this or that crop because the price happens to be high, or give up this or that kind of stock because the price happens to be low.

All this time the Deacon has been thinking. "I don't quite see," he says, "how those barley experiments prove that manure ought to be fermented before using. We don't put our manure on to barley, and it seems curious kind of farming to grow barley after barley every year for nineteen years, and put on 14 tons of manure per acre every year. This may be good science, but to my thinking it is pretty poor practice. If wheat had been sown after the barley, and clover and timothy sown with the wheat, I think these crops in three or four years would have got hold of the manure."

The Deacon evidently does not understand the scientific bearing of these experiments. But, as usual, he shows his practical good sense. It is undoubtedly true that the wheat, and still more the clover, would have been able to take up the manure remaining in the soil after the barley was grown. This is one reason why rotation of crops is so advantageous. Clover is capable of taking up nitrogen from a soil too poor in nitrogen to grow a good crop of wheat. We often have a field of wheat that does not produce 20 bushels per acre followed by two or three large crops of clover. In such a case as this we are warranted in saying that in a favorable season 75 or 80 lbs. of available nitrogen applied to the wheat crop would have given us 35 or 40 bushels of wheat per acre. And yet three or four crops of clover, aggregating five tons of hay, to say nothing of the roots, contains from 200 to 250 lbs. of nitrogen. That the clover got this nitrogen out of the soil, and not from the atmosphere, admits of little doubt.

It seems clear to my mind that our aim as grain and grass growers must be, not merely to get nitrogen, but to get it in an available condition. Growing clover and plowing it under for wheat is all very well as far as it goes. It gives us nitrogen, but it is not in as available a condition as it should be. It would be better to feed the clover to sheep and make the nitrogen available by judicious fermentation. The sheep would not take out more than from five to ten per cent of the nitrogen, and still less of other valuable ingredients of manure. And instead of disputing about the matter, it would be well if we turned our attention to the question of how best to ferment the manure and preserve and apply it without loss.

John K. Tefft, of Rhode Island, writes: "I have three grade Essex pigs that are five months old to-day. I weighed them this morning. No. 1 weighed 219 lbs.; No. 2, 180 lbs.; and No. 3, 178 lbs. They were from a rather coarse common sow. She had eleven pigs, and raised ten. They were evenly marked black and white. She was a good mother, and the little pigs grew very fast. At three weeks old they ate well, and I gave them wheat middlings and Indian-meal. Seven of them were sold at

seven weeks old for double the price of common pigs. The three that I kept myself have been fed on Indian meal and one fourth bran stirred with cold water about as thick as it will run. They have also had a few potatoes. They had some milk when young, but none for some time. After eating their swill at night I usually give them two ears of corn each."

This is a very good showing. Mr. T. seems to think that the pigs have not had extra good food. But I do not see how it could have been better, unless the pigs had had more milk and the meal had been cooked. After all, there is almost as much in the feeding as in the feed—and in some cases more. I do not know Mr. T., but I think he knows how to feed pigs. Those "two ears of corn" at night remind me of one of my own pet practices. In fattening pigs, the great point is to get them to eat all they can digest. And I find that after the pigs have eaten as much cooked or uncooked meal as they will, if you throw a few ears of corn into the pen they are greedily devoured. Then those "few potatoes" fed, I have no doubt with equal good judgment, probably contributed somewhat to this remarkable growth. Mr. T. promises to send me the live and dead weights of the pigs when he kills them.

Mr. Farquhar, of Maryland, writes that he has six acres of apple and peach orchard—the apple-trees just coming into profitable bearing. The land has been cultivated every year or every other year since planted. "I wish," he says, "to plow it again this year, and also desire to have my hogs run in it after the fruit begins falling. Is there not some crop that could be profitably grown between the trees as food for the hogs, to be eaten where it grows?"

The great objection to raising any crop among fruit trees, especially peaches, is that the roots of the growing crop take the moisture out of the land and evaporate it into the atmosphere. On the 27th and 28th of June, 1870, Lawes and Gilbert took samples from each nine inches of soil, to a depth of 4½ feet, from land on which a crop of barley was growing, and also from fallow land adjoining, and determined the amount of water in each sample. The following table shows the percentage of water in the land at different depths:

	Fallow land.	Barley land.	Difference.
1st nine inches.....	20.36	11.91	8.45
2d " ".....	29.53	19.32	10.21
3d " ".....	34.84	22.83	12.01
4th " ".....	34.32	25.09	9.23
5th " ".....	31.31	26.98	4.33
6th " ".....	33.55	26.83	7.17
Mean.....	30.65	22.09	8.56

Messrs. Lawes and Gilbert say: "As the excavation proceeded, barley roots were observed to have extended to a depth of between four and five feet, and the clayey subsoil appeared to be much more disintegrated, and much drier, where the roots had penetrated than where they had not."

I have not time to comment now on these important results, further than to say that they show that the barley crop must have pumped up and evaporated 1035 tons of water per acre!

Farmers sometimes say in words, and more frequently in action, that if an orchard is plowed in the spring and then allowed to grow up with weeds, and the weeds are turned under, nothing is lost. The weeds manure the land. But while there is some truth in this, they forget that a good crop of weeds will pump up as much water from the soil as a crop of barley.

If anything is to be grown in a peach orchard

it should be grown in the autumn and early spring. During the summer months, while the trees are growing rapidly and producing fruit, they need abundance of moisture. Nothing should be allowed to grow amongst them—not even a weed. If anything is grown in autumn and spring, it should be eaten off before the dry weather of summer, or else it should be mown and allowed to lie on the surface for a mulch.

I do not think Mr. F. can "eat his cake and have it." I can think of no crop that can be grown so as to be ready for the pigs at the time the fruit is falling. I should think winter vetches would stand the climate of Maryland, and if so they would be the best crop to grow for feeding off in May or the first part of June.

As I have frequently said, I am trying the experiment of keeping my own Northern Spy apple orchard in grass. I have top-dressed it every year with manure, and keep the grass eaten down close with sheep. So far I am well satisfied with the result. There is an acre of dwarf pear-trees in the same field. These are fenced off, and the land is kept fallow. There are four or five Northern Spy trees that are fenced off also, and these are in the fallowed land. I can not see that they grow better or bear more fruit than the trees in the grass.

The best time to apply manure as a top-dressing for grass is probably early in the spring. But I have been astonished to find how rapidly the manure works down among the grass (or how soon the grass works up into the manure) and disappears, no matter when applied.

Some farmers hesitate to top-dress their grass land for fear it may give the grass a rank taste. If the manure is evenly spread and thoroughly harrowed there is no difficulty of this kind. Sheep and cows will eat the top-dressed grass in preference to that in the same field where no manure has been applied.

"Better not tell that story in the *Agriculturist*," remarks the Deacon, "about an acre of barley pumping up a thousand tons of water. Nobody will believe it."

"You mean, Deacon, that *you* do not believe it."

"Well, I can't say that I do. In the first place, the land during our hot weather in June is pretty dry, and I do not see how you are going to get a thousand tons of water out of it if it is not there."

"But it is there. The analyses showed that in the fallow land there was 3,220 tons of water; and in the land where the barley grew 2,185 tons. You must recollect that an acre of dry soil, three inches deep, weighs 1,000,000 lbs., and when wet about one eighth more. We are dealing with large figures, and must not be hasty in jumping at conclusions."

"I agree with you there," says the Deacon, who always manages to get the last word. What I meant to have said was that even this dry soil where the barley grew, and during a time of unusual drouth, still contained a very large quantity of water, and that perhaps I was hardly warranted in saying that the injurious effects of cropping orchards was due to the amount of water which the plants evaporated from the soil. It would seem as though there was still plenty of water within reach of the roots. But it may be that it is water containing an insufficient quantity of plant-food, and that when an orchard is kept in grass closely cropped and liberally manured, the roots of the grass

and the roots of the trees both are able to find all the food and all the water they need. In other words, manure to a certain extent is a safeguard against drouth.

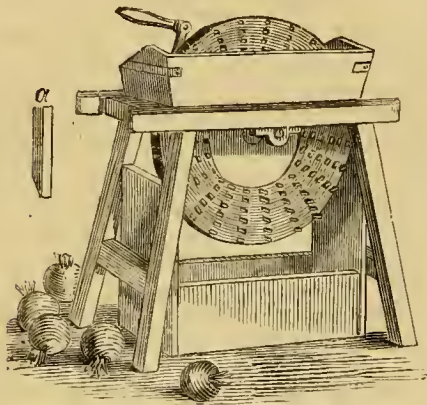
Permanent Pastures.

We can have pastures that will improve every year without the plow. There are thousands of farms in the cheese districts of England where the plow is not used at all in the pastures. There is a soft velvety turf, the result of a century of close feeding. There are millions of acres of pasture in the trans-Missouri country fed for ages by the buffalo and the antelope, growing richer every year by the grazing of these animals and the decay of the buffalo grass. In the best grazing districts of New York and Western Connecticut, there are large farms kept in permanent pasture, and growing more fertile every year by the feeding of beef-cattle. The only fertilizer applied beside the droppings of the cattle is an occasional dressing of plaster, at the rate of a bushel to the acre. Some of these farms will carry a bullock to the acre, and leave a thick mat of grass upon the soil when the bullocks are sold off in the fall. The store cattle are bought in the market in the spring, and put in the pastures as soon as grass starts sufficiently to feed them. The cattle increase in weight, and in the quality of the beef, during the summer, and are sold to the butchers as soon as they are ripe, from August to November. One man can take care of several hundred cattle, and the winter is a season of leisure. Where there is good judgment in buying and selling, the profits of this kind of farming are very handsome, and the farm is all the while improving in fertility. Everything it produces is returned to it again.

Of course all farmers can not follow grazing, but the low price of grains and the high price of meats indicate that the raising of meats pays better than the raising of grain. In the new settlements of the West they must still raise grain, for there is little capital there, and the raising of grain is the easiest way of making money. But in the more thickly settled portions of the country, where the farmer has a good home market for beef and mutton, veal and lamb, and labor is high, he should enlarge his pastures and increase his stock. It is surprising to see the change effected in a few years upon an old pasture by heavy grazing. We came into possession of an old rented farm three years since, that carried but four cows, a pair of horses, and a small flock of sheep. There was a hundred acres or more, devoted to pasture, badly moss-grown, weedy, and bushy, from want of grazing. About thirty head of cattle and twenty-five sheep with their lambs have been kept in good condition in this old pasture the past season, although twenty acres of it were devoted to rye. The feed has been more than quadrupled in quantity, and greatly improved in quality. White clover has come in abundantly, as have fine grasses, and the weeds and brush are disappearing under the noses of the sheep. If the bushes are large, it is necessary to plow, or to cut them frequently to get rid of them. But almost any neglected pasture, free of brush, may be restored by grazing. Top-dressing with concentrated fertilizers will hasten the process of amelioration. In some districts plaster will be sufficient, but the action of plaster is so unequal that an experiment only can tell if it is advisable to use it. In all, bone-dust and ashes will be good and paying investments.

An Improved Root-Slicer.

G. R. Dykeman writes us that he has made what he thinks an improvement on the root-slicer figured in the *American Agriculturist* of January, 1872, page 16. The cutter is mounted

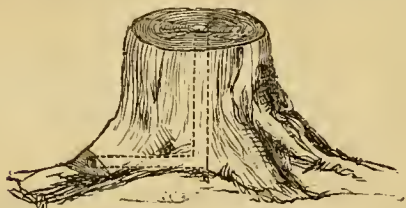


IMPROVED ROOT-SLICER.

on a frame similarly to that in the engraving referred to, and the wheel is of similar shape; but it has a pulley on one side by which it can be run by a strap from a horse-power, and the cutters are not knives, but sharp steel chisels three eighths of an inch square, and projecting half an inch from the face of the wheel. One of these cutters is shown at *a* in the annexed engraving. They are driven in from behind, and as the points are worn they may be taken out and ground sharp, and replaced and driven to the proper position by means of a punch. There are 144 of these cutters in the wheel, and they are confined to a space of nine inches around the face of the wheel. This is not necessary, except when a pulley is affixed to the back of the wheel for the strap of the horse-power. The cutters may be placed all over the face of the wheel if desired. A guard-board is fixed below the frame to prevent the pulped roots from being scattered about, and to guide them into the box placed beneath the cutter-frame to receive them. The roots are finely pulped, and are safer to feed when in this shape than when cut into slices, as it is impossible for any animal, however small, to be choked with a fragment. The wheel used by our correspondent is 3 feet 4 inches in diameter, and made of four thicknesses of inch-boards nailed together. The cost is very small, and its utility he has found to be very great.

Burning Stumps.

A "Reader" sends us a plan by which he has cleared off a great many large stumps very cheaply and easily. His way is to bore a hole



STUMP BORED FOR BURNING.

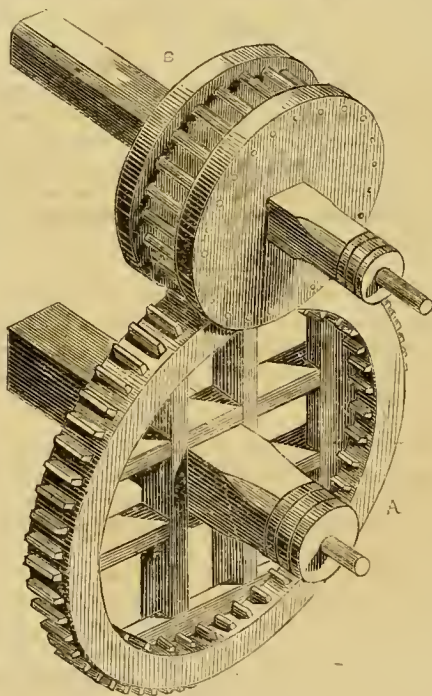
from the top of the stump to the bottom with a two-inch auger. Another hole is bored from the bottom downwards to connect with the first hole. Fire is put into the lower part of the stump, which is fed by the draft of air drawn by the upright hole, and the heart of the stump

burns away, leaving a mere shell, which is readily knocked to pieces. The writer states that many stumps which he has thus burned by this method have had a great portion of the large roots consumed far into the ground. We give a figure of his plan from the drawing with which he has favored us.

NEW STYLE OF MILK-PANS.—A dairy farmer of Chester County, Pa., has had made four milk-pans which are sufficient to serve for his dairy of one hundred cows. They each measure 12 feet in length by 4 feet in breadth and 6 inches in depth. They are double-bottomed, with a space of one inch between the bottoms, which is divided into four compartments lengthwise, through which a stream of water is made to pass up and down, and keep the milk cool or warm, as the case may be. The owner of these pans, Mr. Enos Bernard, claims not only to have less labor in handling his milk and cream, but also to procure a large proportion of cream from the milk by their use. When the cream is skimmed off from the surface, the milk is drawn off through pipes in the bottoms of the pans.

Wooden Gearing.

The construction of gearing for farm machinery is often made an unnecessarily costly business. For all such light work as churning, hoisting, pumping, etc., wooden gearing is suffi-



WOODEN GEARING.

ciently strong, and is much cheaper and less noisy in operation than iron. We give an engraving of a pair of geared wheels which would be found serviceable for the purposes here mentioned. Their construction is very simple, and is sufficiently shown in the engraving without further description. The material may be yellow pine, except for the cogs and pins, which should be of hickory or hornbeam (sometimes called iron-wood) or of some other tough wood, well seasoned.

SWISS CATTLE.—Switzerland is a very small country, a mere patch on the map of Europe and a pile of rocks and mountains besides, yet the Swiss people export four million dollars'

worth of cheese every year. But the Swiss cows are good milkers, else they could not do it. It pays to keep good stock, as well as to make the best possible cheese from the milk.

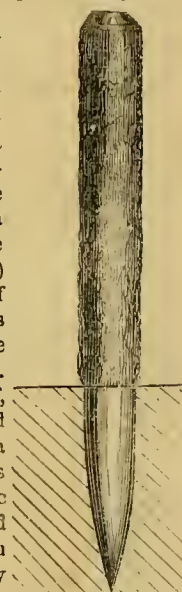
Driving Fence-Posts.

On one occasion the writer desired to erect a board-fence around a field which was free from stones, and he proceeded on the following plan: The line of the fence was laid out perfectly straight, and small stakes were driven into the ground sixteen feet apart. A sharp wedge-shaped pointed crow-bar was procured, with which holes were punched in the ground where each stake was placed. By working the bar back and forth in the ground, the hole was made large enough to fit the post closely, and two feet and a half deep.



Fig. 1.—MAUL.

The post was pointed very evenly on each side (fig. 2), so that it would drive straight. The top was beveled so that it would not split in driving. A triangular stool (fig. 3), with three legs three feet long, and a heavy beetle completed the outfit. The beetle (fig. 1) was made out of a piece of soft maple, fifteen inches long, cut from a small tree about a foot in diameter. The bark was trimmed off, and the edges were beveled off about two inches; a handle of ash two inches thick was put through the beetle, and was trimmed down so as to be an inch and a half thick one way and two inches in another. This prevented it turning



2.—DRIVEN POST.

in the hands when striking with it. When the posts were all ready to be driven, a man held one of them with the point in the hole, while another mounted the stool and drove it down with the beetle. With a little care, the man who held the post kept it upright and in a line with the rest. As the posts were driven, two men followed nailing on the boards. These four men completed a five-board fence around a square ten-acre field in one day and a half, making the labor equal to six days' work. Had the holes been dug, the job would have taken at least four times as long. The cost of the labor was less than ten cents a rod; the men were good mechanics, or it would have cost much more, their labor at two dollars and a half a day being probably twice as cheap as common labor at half that rate. In addition to the superior rapidity and cheapness of the work, the fence was much firmer than it could possibly have been had the holes been dug for the posts.

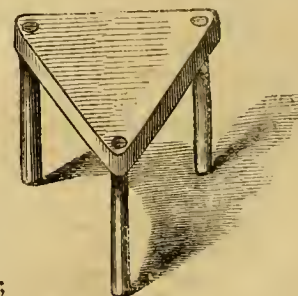


Fig. 3.—STOOL.

A Saw-Set and Gauge.

The art of keeping a saw in order is one to be studied and learned with care. A dull saw,



Fig. 1.—CLAMP FOR SAW.

or one badly set, will increase the labor of cutting wood or timber from five to fifty times. At this season of the year cross-cut saws are in general use, and we give a few timely directions for keeping them in order.

A saw can not be filed well unless it be firmly fixed in a proper clamp. A very good clamp is shown at figure 1. It consists of two pieces of board five or six feet long, with one edge of each beveled, and the other edges joined

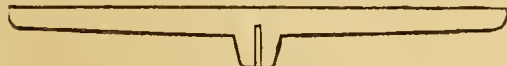


Fig. 2.—SAW-SET.

together with hinges or pieces of stout leather. Each board is fastened to two light legs, so that when they are put together they form a sort of "horse" or trestle, the back of which opens and shuts. Three or four thumb-screws are put through the boards to clamp them together when the saw is placed between them, and it is then firmly held while being sharpened. In filing the saw, the points of the teeth should be brought to a level, and none allowed to project beyond the line of the others.



Fig. 4.

The saw-set, shown at figure 2, is a small bar of iron spread in the center, where a narrow slot or groove is made a very little larger than the thickness of the saw-plate. The tooth to be set is inserted into the slot, and is bent to this side or that by a slight motion of the set. It is best to set the teeth in turn, one to the right and the next to the left, alternately. The saw will become warped if the teeth are set to one side first and to the other side afterwards. As the teeth are set they should be tested by the gauge shown at figure 3. This is a very important tool for all those who use saws. A badly-set saw not only requires several times the power to work it, but it jars very unpleasantly the arms and shoulders of the sawyer or the machinery of a mill. The gauge may be whittled out of a piece of soft pine, or maple, or black-walnut. It should be of a shape similar to the engraving, or an elongated cross. At the end of each arm a small screw is inserted. These are screwed down level with each other, so that the gauge will set upon a saw-blade or other level surface without rocking either way.



Fig. 3.—SAW-GAUGE.

Then one screw is turned down exactly so much as will be equal to the "set" to be given to the saw-teeth. Then when the gauge is applied to the blade of the saw, as shown in figure 4, the point of the tooth if it is set correctly just touches the depressed screw, and the gauge remains firmly seated. But if the tooth is set too much, or not sufficiently, the gauge will be unsteady, and will rock in one direction or another. This little convenience can be easily made, and will be found well worth the little trouble that it costs.

Farmers and Patents.

A farmer sees a gate, a clevis, or some other useful contrivance illustrated in the *Agriculturist* or other paper, and it meeting his wants he makes one and uses it. His neighbor living several miles off sees the affair and makes one like it, and so the thing gets into use throughout a large section of country. At length there comes along a chap who claims that he holds a patent upon the gate or other device, that the farmer has infringed upon his rights, and threatens immediate prosecution if royalty is not paid. In nine cases out of ten the farmer is intimidated by the assurance of the fellow, and to avoid trouble pays the sum demanded, and the fellow, who is in nine cases out of ten a swindler, goes on to fleece the next farmer. This, in brief, is the story that comes to us so often that we are sure that a large amount of swindling is carried on in this manner. Being in Washington a while ago, we had an interview with the Hon. Commissioner of Patents, with a view to see what could be done to stop this now grievous nuisance. The Commissioner is entirely in sympathy with the farmers, and is ready to do all in his power to save them from imposition. He told us several things in relation to the matter which it is not advisable to publish, as the rogues would be put upon their guard. We give our friends the following advice. In the first place, do not be frightened. Most farmers are willing to make almost any sacrifice in order to avoid anything that looks like a lawsuit, and these swindlers know it. Acting upon this knowledge, they bluster and threaten. Let them blow. They can not, under any circumstances, bring you into court under several months, and "bluff" is their chief reliance. If a man claims that you have infringed his patent, demand to see the patent. If he can not show it, or give you its date of issue and the name in which it was issued, do not bother with him. Demand the date, and if you get it tell him to call again. Pay no money until you have written to the

Patent Office at Washington, to ascertain if such a patent was issued on such a date. *Be particular about the date.* Do not fear, that being an unknown individual the application will be unnoticed. It is a part of the business of the office to answer just such letters. If the pretended owner of the patent is a fraud, he, finding that you are not frightened and know what you are about, will not trouble you any more. Still there are cases in which the farmer may have unwittingly infringed upon the patent-right of an inventor. Publishers of journals are sometimes imposed upon by persons who send them drawings of things that have already been patented. An honest owner of a patent is likely to be a fair man, and when you are fully convinced that you have unwittingly trespassed upon his rights, there will generally be no difficulty in effecting a settlement. It is only the pretenders who bluff and bluster. Do not be afraid of any who try intimidation, but adopt the course we have here counseled.

The Use of Pulleys.

The pulley is one of the mechanical powers that is very generally misunderstood. If its advantages were better known, it would be much more generally used. Its real value is such that no farmer or other person using a

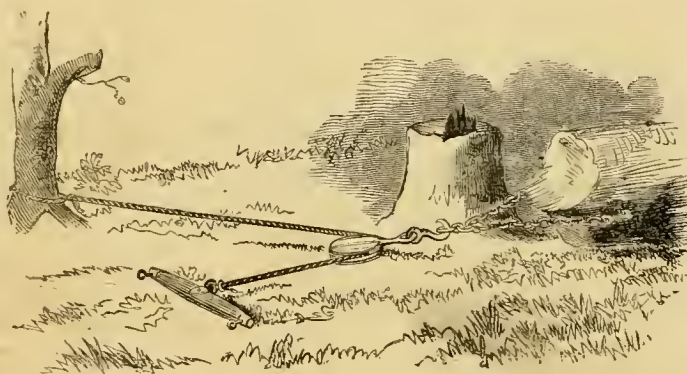


Fig. 1.—PULLEY PROPERLY RIGGED.

team should ever be without one, and sufficient rope to work it. If a heavy load is stalled in a bad spot on the road or in the woods, it may be extricated in a few minutes by the timely use of a pulley, and the worry and loss of time occasioned by vain efforts to drag it out may be pre-

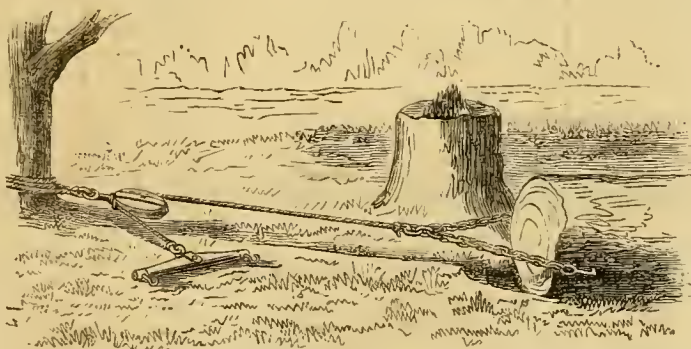


Fig. 2.—PULLEY IMPROPERLY RIGGED.

vented. In hauling logs or large stones it is peculiarly useful, but its full advantages are very seldom gained, because it is not properly used. We give some illustrations showing how it may be used to gain power, and how power may be actually lost by wrongly using it.

Fig. 1 shows a log to which a pulley is attached in a proper manner. It is evident that when the log is drawn up to the stump the

horse will have traveled considerably beyond the stump, and therefore considerably further than the distance the log has been moved. The gain in power will be proportionate to the excess of distance traveled.

In fig. 2 the position of the pulley is changed, and it is evident that when the log has been drawn up to the stump, the horse will merely change

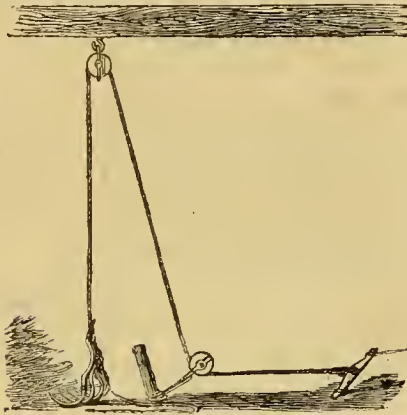


Fig. 3.—BADLY RIGGED PULLEY.

places with it, and will travel exactly the same distance through which the log has been moved. There is now an actual loss of power equal to that which is necessary to draw the rope through the pulley. It may then be taken as a rule when the horse travels in a direction towards the object drawn by means of a single pulley, power is lost; and whenever it travels away from the object drawn, or in the same direction in which it is moved, power is gained. This is an important thing to learn now that hay is unloaded so generally by horse-forks and pulleys. It is not difficult to stall a horse with a forkful of hay. 150 pounds is as much as a horse in general can elevate theoretically; and practically, less than this amount can be raised by a horse moving three miles an hour. Now, if the pulleys are so arranged that power is lost, less than 100 pounds of hay on a fork will be too much for a small horse. But let the pulleys be

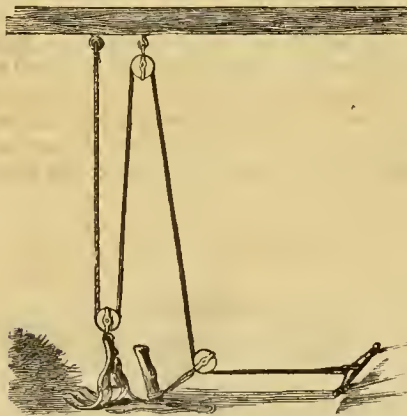


Fig. 4.—PROPERLY RIGGED PULLEY.

properly arranged, and he will raise double this quantity. The advantage then is obvious.

Fig. 3 shows the ordinary way of using the pulleys in unloading hay. If they are arranged as in fig. 4, the horse can do double duty, with the expenditure of very little more time.

In the use of such methods we bring our heads to the help of our hands, and make a little thought do the work of much muscle.

Scab in Sheep.

At this season of the year sheep are often affected by scab. It is a highly contagious dis-

ease, and rapidly spreads through a flock. Its presence may be perceived by the wool becoming loose in patches, a constant irritation of the skin, causing the sheep to be continually rubbing itself against fences, posts, or walls. The skin is red and inflamed, and very often broken by the efforts of the sheep to alleviate the itching. The disease is caused by a very small insect which burrows beneath the skin, and rapidly increases its progeny, which spread until large patches of the skin are affected. Whenever this diseased skin is rubbed the contagion is conveyed, and other sheep are thus infected. The health of the sheep is injured in course of time, and if some remedy is not applied it will die. There are several remedies, all of which are of outward application. One is tobacco-juice, made by boiling waste tobacco, such as stems or second-growth leaves, in water, until a strong decoction is obtained. The sheep are either dipped into this liquid, which is to be brought into contact with every part of the skin, or it is to be poured from the spout of a coffee-pot along the back and sides of the animal between the parted wool, until every portion is reached and saturated. The wool is then squeezed, and the excess of the liquor is gathered, to be applied to another sheep. This treatment will kill not only scab and ticks, but it has also been known to kill the sheep, and therein is its chief disadvantage. There are other preparations which are even of a more poisonous character, but they should be avoided when there is an equally good one which is perfectly safe. This is carbolic acid in a weak solution of one part of commercial acid in four hundred parts of water. This is not poisonous, is not a painful remedy to the sheep, and leaves the skin and fleece in such a favorable condition that it pays to dip the sheep for its effect on the wool alone. There are carbolic sheep-dips already prepared for use, but where they can not be procured a dip may be made of the acid mixed with water in the proportions above mentioned.

Modern Barbarisms.

The numerous barbarous practices perpetrated by farmers who ought to know better on their patient and suffering stock are amazing. That these cruelties are well meant, or thoughtlessly and ignorantly inflicted in the attempt to relieve real or imaginary diseases, does not make them less pernicious. More amazing still is the fact that farmers are instructed by some so-called agricultural journals to practice these cruelties. Occasionally, cures of "hollow-horn" are reported by such means as boring into the acutely sensitive inner part of the horn and inserting therein hot vinegar, salt, and pepper. The equally imaginary "wolf in the tail" is overcome by slitting that part and binding in the wound such an assuaging agent as salt. Young pigs and colts have their teeth clumsily knocked out or broken off, in the gratuitous attempt to assist nature in disposing of them. The membrane by which the eyeball is swept and cleared of foreign matters is cruelly cut off, when painfully inflamed, irritated, and swollen, as a remedy for "hooks and haws," and the animal is permanently deprived of an absolutely necessary appendage and protection to an invaluable organ without any necessity. The remedy is worse than the disease.

In such ways as these utterly useless cruelty

is inflicted, because there is no connection between the supposed disease and the mistaken treatment. But in cases where animals are really laboring under disease, the treatment recommended is often equally cruel and barbarous. For instance, a widely published remedy for "grub in the head" in sheep is to pour turpentine into the ear or inject it into the nostrils. In the one case it is absurd as well as cruel, for the ear has no connection with the seat of the trouble; and in the other it is too cruel and barbarous a remedy to adopt, because there are others equally effective which are not productive of intense agony to the already suffering animal. Tobacco smoke blown into the sheep's nostrils will serve to cause the ejection of these grubs if any exist, but in many cases, if not the vast majority of them, the grubs have only an assumed existence, and the trouble arises from causes which are intensified by the intended remedy. If farmers desiring to treat their animals would but use some common-sense, and, putting themselves in their place, consider how the remedies they propose to use would affect themselves, less of this thoughtless cruelty would occur.

Modern surgery is full of expedients to alleviate pain in the treatment of suffering humanity, and the practice of medicine is no longer as "heroic" as formerly; but unfortunately for our suffering animals, humanity has hardly yet been deemed worthy of consideration in relieving their pains, even when they are unavoidably inflicted; but how much less is it an item of consideration when quackery and ignorance undertake to cure complaints which have no existence!

Three Horses to a Wagon.

We are requested to give a plan whereby three horses may be hitched abreast to a wagon. In

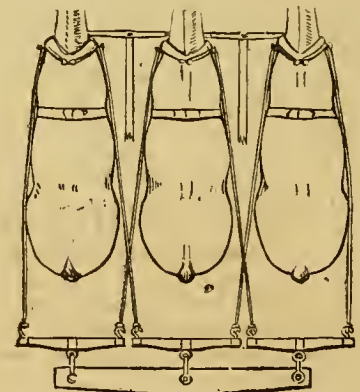


Fig. 1.—HITCHING THREE HORSES.

response, we give engravings of arrangements of single and double trees by which this may be done, also of the method of arranging the lines for driving a three-horse team. The plan of using three horses abreast to a wagon has some



Fig. 2.—SINGLE AND DOUBLE TREES FOR THREE HORSES.

advantages, especially on a farm or a country road. In fact, it has been found useful in the streets of a city, and we remember having seen some years since the omnibuses in the city of London drawn in this manner, and the team handled in those crowded streets with the great-

est facility, where any other way of using three horses would have been inconvenient or impossible. Two poles or tongues are needed; the middle horse goes between them, with one on each side.

Common neck-yokes or neck-straps are used, and the double-tree is made to carry

Fig. 3.—THREE HORSES ABREAST.

three single-trees, one at each end and one at the center. The center one is attached by a clevis which fits on to the draft-bolt of the double-tree, as shown in figure 1. The traces are arranged so that each horse draws on two single-trees. The high horse's traces are hitched to the outside end of the high single-tree and the high end of the center one. The middle horse is hitched to the inside ends of the outside single-

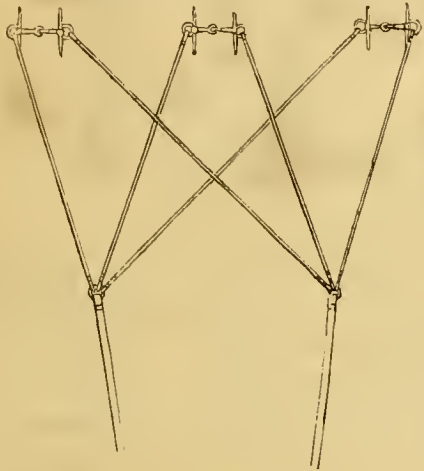


Fig. 4.—ARRANGEMENT OF LINES.

trees, and the off horse is hitched to the off ends of the center and the off side single-trees. The diagram fig. 1 shows the arrangement. Figures 2 and 3 show other arrangements of single-trees which may be adapted to wagons or plows. The arrangement of the lines is shown at fig. 4.

The Earl of Warwick's Sewage Farm.

BY COL. GEORGE E. WARRING, JR., OF OGDEN FARM.

The sewage question has for many years engaged much attention in England. How to prevent the waste of towns from polluting rivers which run past other towns in their course was the first consideration; how to turn the waste to profitable account as manure, the second.

Many attempts have been made to use the land as a purifying agent, and to convert the matters withdrawn by it from the sewage into a useful form as constituents of crops. Most of these attempts failed to accomplish what was expected of them. They generally cost more than they came to, and the problem is as yet by no means solved. In a few cases satisfactory results have been secured.

Lord Warwick's Sewage Farm at Leamington seems eminently successful. It lies about two miles from the city of Leamington, and at a somewhat higher level. The population is 22,000, and the amount of sewage produced amounts to from 500,000 to 1,000,000 gallons per day, according to weather, or from 2,000 to 4,000 tons. For this, Lord Warwick pays \$750 per annum, engages to take all produced, and

to deliver it as pure water into the river Avon. The sewage is forced by steam through an iron pipe from the outlet of the town sewers to a reservoir at the highest and most remote point of the farm. The reservoir holds only one day's sewage. At intervals along the course of the main pipe screw-valves allow the stream to be diverted at pleasure. When the pumps are working, the flow is from the town; when not, from the reservoir. The land is undulating, and has been underdrained with tiles. The soil is a porous loam, with a heavier subsoil. The farm contains 400 acres. From the line of iron pipe, earthenware pipes (8-inch diameter), with cemented joints, lead to the highest points of the different fields or sections of the farm, delivering the sewage where it can be conveniently conducted away by surface gutters. These run along the crests of the slopes, with branch furrows for distribution over the land. The stream is allowed to run first to the lowest part of the field, where it overflows the furrow and spreads over the land below. When this portion is saturated, a wrought-iron gate (with 2 handles) is struck into the furrow, and the sewage, dammed back, overflows the next higher part of the ground. When all lying below the lowest furrow has been irrigated, a gate is set in the main furrow just below the next lateral one above; then the slope below this is treated as the first one was, and the water is stopped at the next lateral above. The arrangement is perfectly simple and no skilled labor is required.

The cost of all pipes and fixtures (not including the draining) was \$30 per acre for the whole farm—\$12,000 in all. The only manure used, excepting the large amount made on the place, is brought to the farm and distributed over it by this apparatus, which is managed by a part of the labor of one man.

The crops are Italian rye-grass, mangolds, wheat, and clover or beans. The yield is marvelous—especially of the rye-grass. In 1872, this was cut 7 times. The growth was about 1 inch per day during the summer, and about 18 feet aggregate in the whole season.

The first cutting was begun March 12th, and the last one was finished in the last week of November. The average over 40 acres was 55 tons—equal to about 10 tons of cured hay—per acre. Of course such a quantity of such succulent grass could not be cured, and its daily consumption, as fast as cut, was imperative. This 40 acres of grass furnished the entire fodder of 40 large grade Shorthorn cows and 12 ponderous English cart-horses from March 12th to the end of November, and a surplus was sold for cash amounting to \$2,500.

The farm is well managed, by Mr. Tough, a capital Scotch farmer, and it is, both naturally and artificially, a good farm. I counted 22 stacks of wheat valued at about \$500 per stack, and the clumps of mangold looked to be interminable. I had no means of learning the cost of carrying on the establishment, but there was no evidence of extravagant outlay in any form. Everything was plain, strong, and business-like. The stock consisted of the 40 cows for milk-selling, as many young grade Shorthorns, a few sheep, and the working horses.

The attention of people who "don't believe in high farming" is called to the summing up of the result of farming these 400 acres, under what is probably the *highest* system known:

After making good its stock (breeding animals to take the place of those sold or worn out) the gross annual sales are £6,000 or \$30,000.

Seventy-five dollars an acre from simple farm-

ing of the best sort, in a neighborhood where the best farms, fully equipped with all that a landlord is expected to furnish, rent for \$12 per acre! Comment is unnecessary.

Fish-Oil and Scrap Business.

To persons passing through Grotton and Stonington on the Shore Line Railroad, and seeing the rough pastures strewn with granite boulders, it may seem strange that the people are not all in the poor-house. But the riches of the sea more than compensate for the roughness of the land. One great source of their wealth is the Menhaden or Bony-fish, that swarm along the shores from May until October. There are seven companies, employing 14 gangs of men, on the shore between Stonington and New London, engaged in the fish-oil and scrap business. They have caught the past season 40,800,000 fish, which yielded about 142,000 gallons of oil, worth about \$64,000, and 4,080 tons of scrap, worth about \$49,000. This makes \$113,000 distributed along twelve miles of the shore of Fisher's Island Sound, from a single industry. The business gives employment to over 200 persons at the factories, and indirectly to as many more, besides the business of freighting the products. There are about 60 boats, large and small, engaged in the catching, varying from 35 tons burden to the small seine-boat of two or three tons. The fourteen gangs of fishermen require each a new seine every year, costing \$500 to \$800, or from \$7,000 to \$12,000 for this one item.

The boats and sails have to be renewed occasionally, so that the business is not all profit. At the Quinnipiac works a superphosphate is made, but most of the companies sell their scrap in the raw state, just as it leaves the press. It is kept in large piles under cover, until winter and spring. A great deal of it is carted in bulk directly from the factories to the farms where it is to be used, within a distance of six or eight miles. Some goes to the manufacturers of concentrated fertilizers in the cities, and the rest is bagged and barreled for the general market. Large quantities are sold to the tobacco farmers up the valley of the Connecticut, and this fertilizer is one secret of the large growth of the fragrant weed in that region. It makes a very important addition to the fertilizers of the Nutmeg State, and is altogether the cheapest manure in the market. On the whole, the "testimony of the rocks" is to be received with certain grains of allowance. The prospect of the almshouse for these men is not very brilliant.

CONNECTICUT.

Corn-Planting.

Somebody has said that "the corn crop must always be the sheet-anchor of American farming." Although there is something of a "bull" in this remark, yet the idea conveyed by it is perfectly true. However we may arrange our rotation, whether we grow roots or not, the corn crop must always come in to start on. Then it follows that we must learn how to make the most of it. The old plan of putting in this crop will not pay any longer. The Indian and the backwoodsman's style figured by our artist in this page, belongs to a day that has long since departed. Yet these obsolete styles of corn-planting still linger in places where new ideas have not yet penetrated, where, for instance, the *Agriculturist* is not a family institution. And although the clam-shell with which

the squaw scooped out a hole for the seed, with a couple of "menhaden" for a fertilizer, and raised the hill over it, while her husband and master industriously looked on and "bossed" the job, has gone out of date, the old-fashioned heavy hoe still remains in use, and the old-fashioned farmer with the help of his wife and children still puts in his patch amidst stumps and roots. On the rich prairies of the West, the horse-planter drops and covers 24 acres per day

farmers? Manure and good cultivation of the soil were the only means used to achieve this result. There was no claim to a new sort of seed, or anything that any farmer could not procure for himself. The soil was a light sandy loam, a sod that had been plowed in the fall, grubbed or subsoiled in the spring, and perfectly well harrowed. Then the drills were opened $3\frac{1}{2}$ feet apart with a double mold-board plow; in these was scattered well-rotted compost from

the crop was on that part of the field we do not know, the corn having been husked and the stalks removed at the time of our visit. The engraving represents the whole operation of this method of putting in a crop of corn, excepting the harrowing and rolling of the ground. Each operation there shown being done as fast as each worker can walk, it is quickly and cheaply performed. When the result is a crop equal to 97 $\frac{1}{2}$ bushels of shelled corn per acre



INDIAN CORN-PLANTING.



PLANTING CORN IN THE BACKWOODS.

in a very cheap way, but the crop yearly grows less and less, and this rapid method must one day give way to a better and more productive one. Last fall we visited the well-known farmer, Mr. Crozier, Beacon Stock Farm, Northport, L. I., and were struck with the appearance and yield of his corn crop. An acre measured out accurately was tested by husking a shock here and there, and ascertaining the average yield of them, by which it appeared that the produce of the acre was 260 bushels of ears. This selected acre was

the barn-yard, hauled on to the field in two-horse carts, from which the manure was dropped, four drills being manured at each crossing of the field. A man following with a hoe smoothed the manure evenly along the drill as quickly as he could walk. The seed was dropped twelve inches apart in the drill by women and girls from the families of the farm laborers. The drills were closed and the seed covered by a light plow drawn by one horse, two furrows being required to do this, one on each side of the

after allowing 25 per cent for shrinkage in drying, it is evident that this plan is a much more profitable one than that of growing 15 to 30 bushels by the methods in general use. The profit realized consists not only in the grain actually raised, but in the excellent preparation of the ground for another crop. This preparation leaves the ground in better condition than a fallow would do, even though it may have been manured; for the clean cultivation, and the shade of the dense crop of cornstalks, kill



MODERN CORN-PLANTING.

no better than the rest of the field, it was not conspicuously different in any way from any other acre, and was selected at random. The test was impartial and not made for any set purpose. The result was surprising, but was verified by repeated proof. The question then arose, By what method was this crop raised, and was there anything in it that was not applicable to the circumstances of all other

drill. The field was then harrowed with the chain harrow figured in the *Agriculturist* of January, 1873, and rolled. The after-cultivation was done with the Shares horse-hoe, with which the rows were kept clean close up to the corn, and very little hand-hoeing was found necessary. A part of the field was treated with a dressing of the Manhattan blood-manure, with very satisfactory results, but what the yield of

the weeds and mellow and loosen the soil. When cross-plowed as soon as the stalks are removed, the soil and the manure left in the drills become thoroughly intermingled, and the ground is in the best possible condition for a crop of roots the next season. In the rotation adopted by Mr. Crozier roots always follow corn, and it is one that under his style of farming becomes very profitable and successful.

The Shining Willow.

There are in the Northern States east of the Mississippi something less than twenty species

basket-work, are excellent for supports to plants or for any other purpose where a light straight rod is required. Such rods are in frequent demand in every garden as supports to plants,

shape shown in the engraving; it has three cells, with a brownish black shining seed about the size of a boy's marble in each cell. These seeds are pleasant to the taste, having a flavor



THE SHINING WILLOW.

of willows. Some of these are humble shrubs, and none of them form very large trees. One of the most beautiful of all willows is a native species which is common along our water-courses, and is noticeable for the deep green of its foliage, every leaf of which looks as bright as if it had been recently varnished. It appropriately bears the name of *Salix lucida*, the Shining Willow. The tree is from twelve to fifteen feet high, but in cultivation grows to a larger size. The small branches are of a polished green, and when older they become bronzed. The leaves are from three and a half to five inches long, and of the shape shown in the engraving. There are at the base of each leaf several small stalked glands. It produces its catkins in May and June, and the flowers differ from those of the majority of our willows in having five or more stamens. This species is sometimes cultivated under the name of the Bay-leaved and Laurel-leaved Willow, names which are also applied to the European *Salix pentandra*, a species which is so near ours that some botanists consider them identical. As an ornamental tree, the Shining Willow is a valuable one on account of the abundance and brightness of its foliage. Our object in calling attention to it is not only to commend it for its beauty but for its utility. When treated like an osier, by cutting it down near to the ground each year, it throws up shoots with great vigor, which though not as good as some others for

and a few trees of the Shining Willow will furnish an abundant supply of the best quality.

The Spanish Buckeye.

While passing through the grounds of Mr. P. J. Berckmans, Augusta, Ga., last fall, we were surprised and pleased to come across an old friend of our Texas travels, the Spanish Buckeye. This usually grows as a shrub, five to ten feet high, throwing up many stems, and forming a dense mass. In particularly favorable places it becomes a small tree of twenty feet in height. It is quite common along the streams in Western Texas, and we have seen it growing in a starved condition not far from El Paso on the Rio Grande. It is remarkable in having the foliage of a Hickory and the flowers and fruit of a Buckeye. The name Spanish Buckeye is a misnomer, as it is a peculiarly American shrub. The flowers are produced in March, but we collected it in bloom in August, and it is said to frequently flower twice a year. The flowers, shown in the engraving of the natural size, are rose-colored, and are staminate, pistillate, or perfect in different individuals or of different kinds upon the same specimen. The bloom in spring is sufficiently abundant to render the plant showy, and the aspect and foliage are pleasing at all times. The fruit is a leathery capsule, of the size and



THE SPANISH BUCKEYE.

not unlike that of walnuts. Some of the party with which the writer traveled in Texas, including the physician, in whom one would have looked for greater caution, ate freely of the nuts, and for some time after were distressing illustrations of the fact that these nuts possess marked emetic properties. It belongs to the same family with the Horse-Chestnut and Buckeye, and bears the botanical name of *Ungnadia speciosa*. Baron Ungnad was ambassador from Austria to Constantinople; in 1576 he sent the seeds of the now common Horse-Chestnut to Vienna, and was thus the means of introducing this tree into Western Europe, and consequently to this country. It is fitting that his name should be honored by giving it to a related species of the far West. The *Ungnadia* flourishes at Augusta, Ga., but we do not know how far north it will endure the winter. It is cultivated in a few collections in France, and the French gardeners advise that it be protected during winter in the latitude of Paris.

Some New or Little Known Peaches.

Some varieties of peaches of great excellence have originated in the Southern States, and Mr. P. J. Berckmans, the well-known pomologist of Augusta, Ga., has made a specialty of collecting and testing them. Mr. B. has lately given in his paper, "The Farmer and Garden-

er," notes upon some of these varieties, and thinking that they will be of interest to fruit-growers generally, we reproduce them:

MUSCOGEE.—Among the many subvarieties of the Columbia or Indian peach, which we have had occasion to notice, this is one which possesses marked characteristics, and is particularly distinct from the usual slight deviations of the type in being a white-fleshed freestone. It originated in Columbus, Ga., by Mr. J. C. Cook, who sent us specimens in August, 1868. From the seeds of these peaches we raised several trees which sported unusually, some being white clingstones of inferior quality, others almost identical with the parent. One of the seedlings, fruiting first in 1870, produced specimens measuring ten inches in circumference, and has during the succeeding years continued to give equally as large and fine fruit.

Size large to very large, round or a little one-sided; skin dingy yellow, nearly covered with crimson, and a very dark brownish crimson cheek, spotted and striped with darker colored stripes and very downy. Flesh white, with a few red veins around the stone, melting, juicy, and very good; stone small and quite round; maturity from August 1st until the 20th, according to season; freestone; wood, foliage, and habit of growth similar to the *Columbia*.

DARBY.—Large, round, suture distinct, and with a deep furrow on opposite side; skin creamy white, with a faint wash of red; flesh pure white to the stone, finely grained, juicy, sweet, and of fine aroma; clingstone; maturity, end of October; quality very good; tree compact and regular grower.

We find this subvariety of the *Heath Cling* a very desirable late peach, and of a quality much superior to the usual very late ripening varieties. It originated at Newberry, S. C., by Messrs. P. W. & R. S. Chick, who deserve great credit in having introduced this fruit.

THURBER.—When the *Chinese Cling* became known, it at once took precedence above all early clingstones, and deservedly so, as there is no clingstone peach ripening at any time during the peach season that can surpass it. For a number of years seedlings of the *Chinese Cling* were made with the expectation of producing a variety that would combine the qualities of the parent with the additional merit of being a freestone. After repeated experiments the wished-for variety was obtained, and after two seasons of production, we are warranted to say that it equals the *Chinese Cling* in size and appearance, as well as quality, and we can not better describe it than to compare it with that famous variety in every respect except being a freestone. The foliage and appearance of the tree are identical with the parent, but the growth is less straggling and assumes a more compact form. This fruit is due to the care and skill of Dr. L. E. Berckmans, and, by permission from the producer, has been dedicated to our friend, Prof. George Thurber, chief editor of the *American Agriculturist*.

PICQUET'S LATE.—In the January number of "Rural Alabamian," the editor says: "This variety is by no means as widely known and planted as it should be. For its season, it is the evidence of all who have fruited it that it has no compeer. Large to very large, bright yellow, and of most excellent quality, it can not fail to become one of our most profitable market peaches, ripening as it does when good peaches are scarce, and the trees being fine growers and abundant bearers. Season, first half of September; freestone."

This magnificent peach originated in the orchard of Antoine Picquet, Belair, Ga. In 1858 we cut the grafts from the original tree, which died the following year. After fruiting it for four consecutive seasons we put it in the trade, feeling assured at that time that it was destined to become a most valuable market peach. In this we have not been disappointed, and it is a source of congratulation to us to have added this peach to our list of superior fruits and saved it from destruction. It ripens with the *Smock*, to which it is immensely superior in size, appearance, and quality. The *Salway* also matures at the same time, but is also inferior to the Picquets, from a limited experience in fruiting the former and from reports of others who fruited both varieties side by side.

Propagation of Carnations and Pinks.

BY PETER HENDERSON.

"An Amateur," from Des Moines, Iowa, complains that he has no success in rooting cuttings of either Carnations or Pinks, although he never fails in Fuchsias, Geraniums, Colons, Verbenas, or Begonias. The varieties he succeeds with we all find to root quicker than the Carnation or Pink, but not more surely if the proper conditions be observed. These conditions are that the plant of Carnation or Pink from which the cuttings are taken must be in a healthy, growing condition. The temperature of the sand of the propagating bench in which the cutting is inserted should range from 65° to 75°, and the atmosphere 15 degrees less. The sand must always be kept moist, and great care must be taken that neither sun nor drafts of air strike the cuttings long enough to wilt or shrivel them, for if once shriveled nearly all hope of rooting them is gone. But these conditions of temperature are not likely to be obtained easily by amateurs, so I again recommend, as the safest of all methods of propagating, the saucer system already described by me in your columns, and also in my work "Practical Floriculture," as the best method of propagating Carnations, Roses, or in fact anything else in the small way.

Origin of the Baldwin Apple.

BY CHARLES DOWNING.

[In August last, we published an article from a well-known literary lady, giving her history of the Baldwin. After its appearance we received several letters from various quarters, each giving a different story about the apple. To publish all these accounts would leave the matter more confused than before, and we thought it wisest, amid conflicting stories, to drop the matter for the time. This did not suit some who, because we would not publish their particular stories, considered us unfair, but we preferred to wait for something positive, which we now have from Mr. Downing, who has a keen eye for anything relating to the history of American fruits.—Ed.]

In your paper of last year, 1872, page 303, "Mrs. E. Oakes Smith gives the origin of the Baldwin apple, saying it originated with Josiah Pearce, town of Baldwin, Maine, about 60 years ago," but in looking over the history of Woburn, Mass., by Samuel Sewall, A.M., which was kindly sent me by J. W. Manning, of Reading, Mass., I find the following history, which appears to me the most correct one. "As Col. Soammi Baldwin was one day, about the year

1780, surveying land at a place called Butters Row, in Wilmington, Middlesex County, Mass., near the bounds of that town, Woburn and Burlington, he observed one or more woodpeckers continually flying to a certain tree, growing on land of Mr. James Butters, hard by. Prompted by curiosity to ascertain the cause of their frequenting that tree, he at length went to it; and finding under it apples of an excellent flavor and well worth cultivating, he returned to the tree the next spring, and took from it cions to graft into stocks of his own. Other persons in that vicinity, induced by his example or advice, grafted trees of theirs soon after with cions from the same stock, and subsequently, whenever Col. Baldwin attended court, or went into different parts of the county as high sheriff, he was accustomed to carry cions of this variety of apple with him, and to distribute them among his friends; so this species of fruit soon came to be extensively known and cultivated. The original tree, it is said, was blown down in the famous 'September gale,' in 1815."

"At first apples of this description were called by many 'Butters apples,' from the name of the person upon whose land the original tree was found; and by others Woodpecker apples, from the bird whose constant flight attracted the notice of Col. Baldwin, and led to the discovery of the excellency of the fruit which grew on it. But, on a certain day (it is reported), when Col. Baldwin had a party of gentlemen at his house to dine, he set before them a dish of these apples; and one of his guests, admiring their good qualities, asked him by what name they were known? 'By no name in particular,' the Colonel replied; 'call them, if you please, Baldwin apples.' And this has ever since been their common name."

The Codling-Moth Again.

The greatest obstacle to profitable apple-culture is the Codling-Moth. This lays its eggs in the blossom end of the fruit, and the larva or "worm" eats its way into the young apple, feeds upon its substance, and when it has reached maturity goes forth to find a place where it can hide, spin a cocoon, and then appear as a moth to do the same thing over again. This insect can be best attacked as a chrysalis or cocoon.

It naturally hides itself, when about to undergo its change, under scales of the bark or in its crevices, and as it accepts the readiest shelter, traps are devised which take advantage of this instinct of the insect. Hay ropes and bands of various kinds put around the trees, and removed from time to time to destroy the worms, have long been used, and last year we figured a trap, patented by Mr. Wier, which operated upon the same principle. At the annual meeting of the Michigan State Pomological Society, Mr. B. Hathaway proposed a trap which he has found successful, and which possesses the merit of being unpatented. [Note.—We just were wish to express our thanks to one man (Mr. B. Hathaway, nurseryman, of Little Prairie Rond, Mich.) who can present to his fellow fruit-growers a useful device, and has public spirit enough not to patent it, and we hope that all who have occasion to buy fruits in that portion of the country will show their appreciation of this act, as we do by giving Mr. H., whom we do not personally know, this first-class notice.] Mr. H., in making berry-boxes for his fruit trade, uses veneers, and he takes this same material for his moth-trap. A strip of veneer 4 inches wide and long enough to encircle the tree, is soaked in water to make

it flexible, and bound around the tree with strong twine, and that is all. The traps must be examined every week or two, the worms crushed, and the traps replaced. With proper care a set of veneers should last for several years, and if all the fruit-growers in a neighborhood would combine and use this trap thoroughly, the ravages of the Codling-Moth would soon be reduced to a minimum.

Peaches Here and in England.

"The Garden" publishes an account of a profitable peach-tree at Rochampton Park, and after giving the method of cultivation presents a tabular statement of the dates of ripening, produce, and sum realized for the fruit for the past eleven years. This table we copy:

Date.	Fruit Ripe.	Produce.	Sum realized.
1862.....	June 15	42½ doz.	£42 10s. 0d.
1863.....	May 28	48½ "	48 10 0
1864.....	May 1	42½ "	67 00 0
1865.....	April 21	27½ "	65 00 0
1866.....	May 10	33½ "	50 00 0
1867.....	May 3	39½ "	49 17 0
1868.....	April 21	37½ "	50 00 0
1869.....	April 29	54 "	60 00 0
1870.....	May 3	5 "	6 03 0
1871.....	June 3	74 "	37 00 0
1872.....	May 1	64 "	53 11 6

Total.....473½ doz. £529 11s. 6d.

The total produce of this tree in eleven years is in round numbers \$2,600, and the peaches brought on an average \$5.50 a dozen, and each year's product of the tree was not far from \$236. It is true that these peaches were grown under glass and forced, but notwithstanding this the story of this tree has a lesson for our fruit-growers. Mr. Robinson, the editor of "The Garden," was here in the light of our fruit season, and when he stated that he had not seen a decent peach in the New York market, we were disposed to regard his remark as a bit of John-Bullism. The next year we passed a week in the peach orchards of Delaware and Maryland, and were quite convinced that we had never seen a decent peach in the market. All peaches for market are picked just before they are ripe, and are expected to come into eating condition by the time they reach the consumer. The difference between a peach ripened upon the tree and one ripened in a basket, can only be appreciated by those who have tried both.

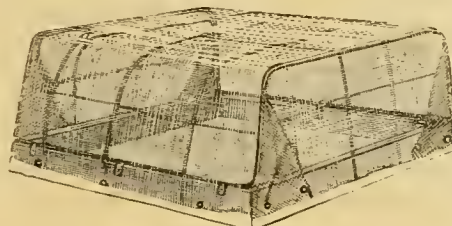
There is one thing well settled as far as the markets of our large cities are concerned—extra fruit will always bring an extra price. In evidence of this we have only to recall the Jucunda strawberries of the late Mr. Knox, which on account of their enormous size and fine appearance sold at several times the price of ordinary fruit. We do not expect that many of our people will go into the forcing of peaches, but we do believe that it will pay peach-growers to take more pains with their fruit. Instead of having their peach-trees so loaded that the branches trail upon the ground, they should be thinned—with a part of the crop at least—so as to get a smaller number of finely-developed peaches, and then they should devise such a method of packing as will allow tree-ripened fruit to be sent to market. Boxes to contain a single layer packed in cotton might accomplish this. At all events, we have no doubt that whoever tries the experiment of sending to the New York or other large market, extra peaches, will find his remuneration in extra prices.

WATER-PROOF SCREENS.—According to the Florist and Pomologist, both paper and cotton-

cloth may be rendered water-proof and translucent by giving them a coating of "a solution of gelatine or glue, to which one fiftieth part by weight of the bichromate of potash is added." . . . "The process must be carried out in full daylight. It is stated that the Japanese prepare their paper umbrellas in this way." This is provokingly indefinite, as we are not told how strong the solution of glue should be, nor whether the weight of bichromate should be one fiftieth of that of the glue or of the solution.

Plant-Covers or Protectors.

"Eternal vigilance is the price of" cucumbers. The plants as soon as they are out of the ground are met by the Striped Bug and "Flea," and at no time of their existence are they safe from the attacks of the spotted Yellow Lady-Bug and the sober-looking Squash-Bug. If we can manage to protect the plants until they get large enough to "run alone," the attacks of insects are not so disastrous, and those who have cold-frames or other glass can carry their cucumber and melon plants beyond their feeble stage before they set them out. The majority of persons, however, sow the seed in the open ground and trust to various kinds of protection. Powders and washes of various kinds have been found more or less effectual, and shields are used varying from a common newspaper to elaborate hand-glasses. Frames of various make covered with netting have been sold and



PLANT-PROTECTOR.

used with more or less satisfaction. The best screen of this kind that we have seen is one offered by B. K. Bliss & Sons, and is illustrated here by an engraving. It is simply a wooden frame upon which is a support of galvanized wire which holds the screen of netting. The wooden base allows the affair to be placed in close contact with the soil, so that no insects can crawl under it, and at the same time lifts the netting above contact with the earth, which with most other protectors is a great annoyance, especially when there are frequent rains. Screens of this kind are not only useful to protect plants from insects, but they keep off chilly winds and slight frosts, while they do not interfere with the growth of the vines.

Foreign Horticultural Items.

The First Lady Writer on Horticulture is said to be an English woman, Mrs. Ives, who wrote upon *Gilliflowers* in 1690 or thereabouts.

The Last Potato in England is the "New Hundredfold Fluke Kidney," which is lovely for a name. The engraving looks like a painted Easter egg, with not a visible eye.

A Precocious Coconut.—The Gardener's Chronicle figures a Coconut which still in the seedling state bore flowers. The plant was only a few inches high, and, as well it might, much astonished the natives at Bengal where this unusual development was manifested.

Hydrangea paniculata grandiflora.—Take it

all in all, this is the finest shrub we have. "The Garden" says it is 20 to over 30 inches high. Ours last year was about five feet high, and is a young plant yet.

Don't know Sweet Apples.—A correspondent of one of the English horticultural journals says: "Will any of your readers kindly inform me what the American papers mean by 'sweet' apples, which they seem to distinguish as a peculiar class?" That man never ate baked apples and milk.

Briar-wood Pipes.—John R. Jackson, Royal Gardens, Kew, writes to "The Garden" that his investigations show that briar-wood pipes are made from the root of a species of Heath (*Erica arborea*), and not from the root of a Smilax. Every one at the South knows that briar-wood is abundant, and that it is a Smilax. It is not improbable that two widely distinct plants furnish material for the manufacture.

Tree and Plant Swindlers.

Last year we had occasion to show up the pretensions of Lafayette & Co., who offered Blue Roses, Tree Strawberries, and similar improbable horticultural "novelties." We learn that a similar concern has already appeared at the South and is working northward. Tree peddlers, with their pictures of astonishing fruit, are now around, and are about as bad as any foreign rogues. Recollect that the regular dealers have all the novelties worth having, and that new and valuable fruits and flowers are not introduced by unknown traveling dealers. If a man pretends to be an agent of a nurseryman, ask to see his papers. Some nurseries send out traveling agents, but always give them papers showing their authority. Buy always of regular dealers—if mistakes are made they can be rectified; and do not believe any stories about new fruit or flowers of great value, no matter how attractive, the names of which are not to be found in the regular lists.

The Management of Blackberries.

Several letters are at hand asking about the treatment of blackberry plantations, especially such as have been neglected. It is difficult to give advice in each particular instance without seeing the condition of the plants, but we can indicate general principles which each one can apply to his own case. If the manner in which the blackberry grows be understood, then the course to adopt with an old plantation or in forming a new one will be plain. The illustration shows a blackberry-bush at three years old or more. For the sake of simplicity, only one of each part is shown, while in an old and neglected plant there will be half-a-dozen more or less of the growths here represented. Looking at the bush in the spring of '73, we find an old cane (a) which grew in '71 and bore fruit in '72, and is now no longer of use, but should be cut away, else it will die down and add to the entanglement of the plantation. Then we have the cane (b) of bright new wood which grew in '72, and which will probably bear this year, and should, after it has fruited, be cut away. Just below the surface, and ready to start very early, will be found strong buds (c), which this year will grow and form canes like b, and bear in 1874. The canes are biennial, growing one year, fruiting the next, and afterwards are of no further use, a constant supply of new canes being kept up from buds at the root of the plant.

All of the new growth, however, does not start close to the base of the old canes, as at *c*, but an underground stem will push out to a distance of several feet from the old plant before it seeks the surface, hence the patch that was regularly planted at first will, if neglected, grow up into a tangled thicket. In dressing up an old plantation, all plants not in the rows should be



DIAGRAM OF BLACKBERRY PLANT.

grubbed up, all canes that have fruited be cut away, and if at a stool there are more than three or four of last year's canes (*b*), let them be reduced to this number, and these should be secured to a stake or other support. In making a new plantation we take plants that have come up at a distance from the main stool. These will consist of a cane that grew last year, with one or more strong buds, like *c*, at its base. If this be set out just as it is taken up, the cane will bear a little fruit, but at the expense of the future welfare of the plant. After having been disturbed, the whole strength of the plant is needed to develop the buds (*c*) into strong canes to bear another year. Hence in transplanting always cut off the cane (*b*) near to the ground, leaving only enough of it to allow of the convenient handling of the root. If left to themselves, blackberry canes will often grow eight or ten feet high and be out of reach and top-heavy. This is avoided by stopping the cane during the growing season, as soon as it reaches the height of five or six feet. A pinching out of the tender growing point will do this. In a short time side branches will push out vigorously, and these, when they are about a foot and a half long, are to have their growth stopped by pinching in the same manner. The result will be a low, compact, well-branched bush instead of the long straggling things we so often see. All shoots that come up where they are not wanted are to be treated as weeds and exterminated,

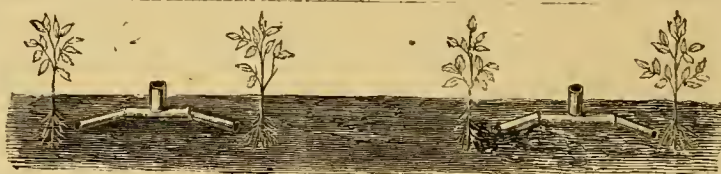
The Carolina or Yellow Jessamine.

Those who write upon the beauty of spring in the Southern States are eloquent in the praise of the Yellow Jessamine. It is a plant well calculated to excite enthusiasm, as it grows in such abundance, festoons the trees and shrubs so gracefully, is so brilliant in both foliage and flowers, and is withal so fragrant, that it is sure to attract the attention of the most indifferent. It grows from Eastern Virginia to Florida and westward. The engraving of a small spray here given is from a water-color drawing by M. Camille Le Hardy, of Augusta, Ga., an amateur artist and great lover of native plants. The leaves are variable in size, and are often much larger than here represented; they are thick, shining, and almost evergreen. The flowers are from an inch to an inch and a half long, of the shape shown in the engraving, and are borne in small clusters in the axils of the leaves. The color is bright yellow, and the almost overpowering fragrance is similar to that of the Jessamine. The plant is not very closely related to the true Jessamine, but belongs to the Logania Family, of which we have another highly ornamental representative in the Pink-Root (*Spigelia*). Its botanical name is *Gelsemium sempervirens*. Gelsemium is the Italian name for Jessamine, and the Jessamine-like odor of our plant led to its application as a generic name. Linnæus called it a *Bignonia*, and it does resemble a Trumpet-creeper in general appearance. Of late years the root of Gelsemium has been largely used in medicine. It is said that a Southern gentleman being ill with fever sent his negro servant to dig some roots of a

tive so powerful that it ranks among the most active medicines, and is in large doses a dangerous poison. It is said that the odor of the flowers affects sensitive persons unpleasantly, producing stupor. As an ornamental plant, the Gelsemium is worthy of the attention of cultivators, as it would be a fine thing to run upon the rafters of a cool greenhouse, and it makes a very pleasing window plant. We have housed our plant in winter, but propose to try whether it would not, with proper protection, endure the winter in the open ground.

How the Tomato Premium was Won.

Mr. E. T. Renwick, of New Jersey, to whom Col. Waring paid his premium of \$100 for the



MANURING TOMATO PLANTS.

largest and best Trophy Tomato of 1872, has communicated to us his method of cultivation: "After the plants are set out, I put down in the alternate spaces between the plants, an inverted T of 1½ inch drain-tile, and I add a short piece of tile at each end of the T, so as to reach the vicinity of the centers of the roots of the plants at each side. A section of the bed thus prepared would have the appearance of the annexed illustration. Whenever the ground is sufficiently dry to permit watering, a funnel is inserted in the open end of the T, and liquid manure is poured in, the article which I use being the sewage of my house, which is collected in a tank for such purposes. This system



CAROLINA JESSAMINE.—(*Gelsemium sempervirens*.)

plant that he had been accustomed to use when ill. Some roots were brought, and a tea was made which the patient took. It came near being his last dose, as he became unconscious, and had all the symptoms of narcotic poisoning. Upon investigating the matter, it was found that the servant had dug the roots of Gelsemium instead of the plant he was directed to get. This accident led to the investigation of the plant, and it was found to be a nervous seda-

of watering obviates the caking of the ground at the surface, while it causes the plants to grow with extraordinary vigor. I have a bed of three dozen Bourbon, Noisette, and Tea roses, treated in this manner, and the vigor and abundance of bloom are such as to surprise all who see them. In December, the rose-bushes are loaded down and covered with vigorous leaves, and they are very much more satisfactory than if they were taken up every fall."

This certainly is a very simple plan, which may readily be tried by any one who can get even

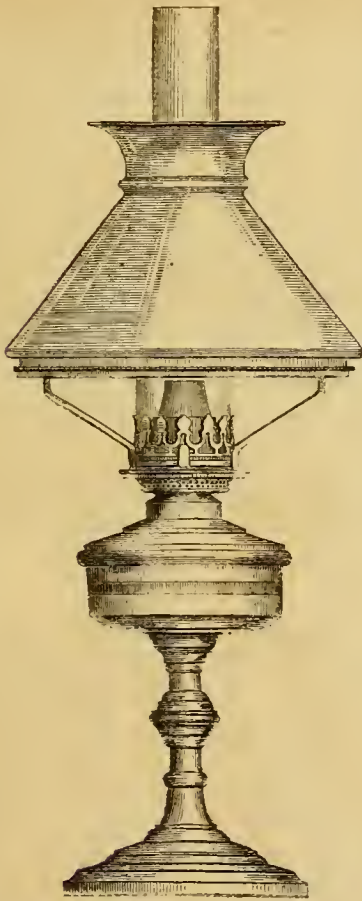
a piece of old tin leader. The idea of introducing sewage water in this manner about the roots of the plants is not entirely original, though the application of it is so. The earth-closet people have for some time recommended that house sewage be distributed through lawns or in fruit borders by the use of draining-tile, placed ten or twelve inches below the surface, and we know of several instances in which this plan of manuring is in satisfactory use,

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Illumination and Lamps.

Those who live in the country are apt to think that gas is one of the great advantages enjoyed by those who dwell in villages and towns. Gas is indeed very convenient, and its use is not attended with trouble. Indeed, so little trouble is it to turn on the gas and have an uninterrupted flow, that one is apt to burn much more than there is any real need of, and this very facility with which it may be used makes it an expensive mode of lighting. When we resided in the city we used it for the general illumination of the house, but for reading, writing, or needlework found kerosene to give a much pleasanter light. Gas-flames are unsteady, and flicker in such a manner as to be injurious to the eyes, unless an Argand burner be used, which consumes much gas, and is consequently costly. Good kerosene oil burned in a good lamp is as near perfection as we are likely to reach in the way of



ORIENT SAFETY-LAMP.

artificial illumination. The filling and caring for several lamps of the best construction is very little trouble, and if it be done at a stated time in the morning the work becomes a matter of course and ceases to be irksome. Some two years ago we figured what is known as the German Student's Lamp, and we still consider it, as we did then, unequaled for brilliancy. It has, however, one fault: it is very consuming of oil, and though it leaves nothing to be desired in the way of light, it can not be regarded as the most economical source of it. Recently we have tried a new lamp, called the "Orient," and several weeks' trial has failed to show any fault in it. The lamp is of a neat pattern, as shown in the engraving, and has a hollow or Argand burner and cylindrical wick. Instead of having a tube pass up through the center of the oil-reservoir to allow the passage of air to the center of the flame—as is done in most lamps with cylindrical wicks—there is an ingenious device for admitting the air to the interior of the flame

through the side of the wick-tube and above the body of the lamp. This does away with all drip, and the disagreeable oil-eup at the base, and materially reduces the trouble of trimming the lamp and keeping it clean. The flame is pleasant, bright, and steady, and the lamp is not a rapid consumer of oil. We do not see how one can get a better return in light from the amount of oil consumed than from the Orient. It is claimed for this, as well as for some other lamps, that it is non-explosive, a point to which we pay no attention, as we are careful to use oil that will not explode in any lamp. Admitting that a lamp can be made secure against explosions, we would just as strongly insist upon safe oils. Oil that requires any particular machinery about a lamp to enable it to be used without danger should not be allowed in the house, nor is it proper that it should be an article of commerce.

A Cistern, or a Water-Hogshead?

When I came into possession of the premises I now occupy, five years ago, there was a large iron-bound cask at the back of the house, holding some four or five barrels. This stood under the leader from the roof, and caught rain-water for the family washing. The well-water was hard, and the soft water from the skies saved a good deal of soap and labor on Mondays. But the use of the water from the cask was accompanied with some difficulties. It had to be carried into the house by the pailful, and this was work. In winter it was frequently frozen, and sometimes so hard as to push out the bottom, and the services of the cooper were needed for repairs. The melting of the ice-chips made slow work of washing. Occasionally in summer there was drouth, and the cask was empty. The cask was a blessing, but with many drawbacks.

I thought a cistern in the cellar would remedy all these evils. It was placed immediately under the sink-room, in one corner, so that walls had to be built upon two of the four sides only. It was made about seven feet by five upon the inside, and the walls were carried up four and a half feet high. The brick was laid in cement, and the wall was made double, and the inside cemented. The whole cost was thirty dollars. A pump was put in, with about eight feet of inch-pipe, which takes the water into the sink-room. The comfort in the household of this little expenditure has been very great. There is no exposure to the weather on washing days, no freezing of water, and no bursting of casks. There is an abundant supply of water for family use for three months, even if not a drop of water should fall from the skies. An overflow pipe near the top of the cistern carries off all excess of water in case of heavy rains, so that there is no danger of flooding the cellar. In the absence of a good well, I should put a brick partition through the cistern for a filter, and have good drinking water. Ordinarily, a cistern can be built at less expense than a well can be dug, and the filtered water is pure and wholesome. C.

Mending Broken China, Etc.

In the first place, take excellent care of the pieces of any broken dish or vase. Do not handle the broken edges, or allow them to become dusty or greasy, but lay them carefully away, and do the mending as soon as possible after the breaking. The best cements often fail because the parts united by them are not clean.

Another general rule for all kinds of cement or glue is this: Make the layer of cement between the parts as thin as it can possibly be, and yet entirely cover the edges. A very thin layer is much stronger than a thick one. Where the shape of the pieces will allow, rub the edges together after each has been smeared with the cement, so as to even and work it well together. Press very closely, and keep up this pressure (usually by tying the parts together) until the cement is dry. Those cements dry most quickly which are applied hot.

If the directions with your cement say "hot," do not fall short of it and only warm the pieces.

An old and well-tried way of mending broken glass and crockery still remains in excellent favor, and is well worth trying by housekeepers who can get plenty of skimmed milk. Dishes badly cracked should be set away until they can be boiled in skimmed milk. Those broken apart should be tied firmly together, and boiled gently in carefully skimmed milk for an hour or so. Leave them tied together for several days before using, and they will then be found almost as good as new. The milk should be cold when the dishes are put in to boil.

Broken crockery is sometimes mended with white paint. Dishes so mended should be left to dry for several months before being brought into service.

A better cement is made of white-lead and copal varnish mixed to the consistency of cream. Apply this carefully to each edge of the broken dish, work it together and press closely, tie it strongly together, and lay it away to dry for several weeks. This cement is said to bear hot water better than any other. It is cheap, and very strong.

A great deal may be saved by somebody by attention to these little matters. And yet your own time may be worth so much that you really can better afford to buy new things than to tinker up old ones. Each of us ought to be on such a pleasant human-family footing with our neighbors that all the odds and ends may go to the right place and be saved by somebody. Common beggars would not care for your broken things, but some careful grandpa or half-invalid might delight to mend them up for use in another home than yours.

FEMINA.

[In addition to the hints of our correspondent, we would add that cements formed largely of Isinglass or other form of gelatine (of which the old "Diamond Cement" is the type) often fail upon common crockery, on account of the porosity of the material, while they cement glass and true china-ware well enough. When these cements are used upon the ordinary white-ware or stone-ware, the surfaces should have a thin coat of cement, which is to be allowed to dry; then warm the pieces, and give each another thin coat, and put them together. Vessels cemented by means of white paint or white-lead should be kept to contain dry articles exclusively. Preserves and the like ought not to stand in them.—ED.]

Home Topics.

BY FAITH ROCHESTER.

OUR AIM WITH OUR CHILDREN.—More than once I have been asked to give here my views of family government. Little by little I have been doing so, it seems to me, yet some do not see it, their own ideas are so radically different from mine. It is a big theme, and here and now I will only consider the object or aim of the parent toward the child.

I read everything I can find about the training of children, sometimes with strong dissent and sometimes with approval. No subject interests me more deeply than this, but I feel like a very young learner, and not at all qualified to teach. I only want to talk the matter over.

Abbott, in the preface to his "Mother at Home," says: "When a person writes upon the subject of family government, the first thought which arises in the minds of many readers is, 'We will see how he succeeds in his own family.' There are many motives, such as indolence, false tenderness, etc., operating to induce a parent to neglect known duty. The principles contained in the 'Mother at Home' may be correct, even though the author should fail to enforce them."

I am quite willing to admit that my children are no models of behavior. Sometimes they whine, sometimes they yell, sometimes they hector each other, and they would probably be called "noisy childreo." Not long ago, a person (a childless person, mind you!) gravely asserted, as settling the character of one of these bairns, that the child was selfish! "Papa" and I had our quiet laugh

over this, for we had discovered long before this that such is the natural inheritance of most of Adam's descendants. Here and there we find an angelic natural temperament—and do we not almost instinctively expect to see such children take wings and fly to angel-land before they grow up to life's cares? A well-balanced child has two strong loves, the love of self and the love of others; and one is just as innocent as the other. Each must be taught its proper use.

Human life has three stages. 1. The instinctive, when the instincts rule the reason. This is childhood, when the guidance of wise parents is needed. 2. The rational, when reason gradually obtains the control of the instincts and obliges self-love to give way to love of others. 3. The mature stage, when the warfare between the instincts and reason is over, and self-love freely defers to neighborly love.

Though this seems to be the normal course of human development or growth of character, it is quite evident that many (indeed most) lives show no such progress. Comparatively few of us attain in this life to that stage where our delight and our duty draw in the same line. With many persons it is childhood through their whole lives; that is, *outward constraint*, fear of the law and its penalties, dread of public scorn, desire for popular favor—these motives alone keep them decent. As far as they dare, they obey only their own "want to."

Now, what I wish to do—what *we* wish to do for our children, is to govern and train them while in their tender years so that they may early come under the command of their own reason and conscience.

This was not the acknowledged aim of family government in former generations. Obedience to outward *authority* of some kind, beginning with parental authority, was the great end sought for. The spirit of American institutions demands something better. "We, the people," govern ourselves, and there is no safety for our much-prized freedom except as individuals are trained to obey conscience and reason. We do not want here a people "orderly" because servilely obedient to one powerful leader. We want a people who intelligently choose to be orderly, and who elect faithful public servants to help them in all good public work.

The idea of good family government used to be, and still is to a great extent, to make well-behaved children. I have suffered much worry from the criticisms (expressed or implied) of persons who judge of my efforts and success in training my children by their present behavior and condition without any ability or apparent inclination to understand my aims or to appreciate the gradual growth of character in the children. I see perfectly well that the old simple rule of "absolute unquestioning obedience" of child to parent, with the one sweeping rule of manners, "children should be seen and not heard," makes better-behaved children, according to the popular verdict.

Obedience I do thoroughly believe in, and never consciously allow disobedience in our children without some resulting penalty. I am not so anxious that they should obey their father and mother simply for the sake of our authority (though that is important for the family welfare) as for the sake of their learning to yield their own wills and ways to those whom they know to be wiser than themselves. Obedience must be constrained in their tenderest years, before any explanation for it can well be given; but I would *command as little as possible*, always seeking a child's cheerful and intelligent coöperation in its own education, instead of its passive obedience to my will.

Manners and habits are of very great importance, and in plastic childhood these should be well looked after. Gentle and courteous manners are better taught by example than by precept; and so of neat and orderly and industrious habits. It is very common to see parents laboring away upon these things with most praiseworthy fidelity, while they seem utterly unconscious of the neglected deeper work upon the character which is infinitely more important. Happy are the parents who have the wisdom and ability to carry all along together.

Most of us labor under disadvantages. Some things which have seemed to me of the very first importance in the way of a mother's outward circumstances, and which I should once have supposed that almost every mother could easily secure, have been utterly out of my power.

Let us not build up hopes of what our children will do for us some day. It is but our reasonable service to them that we give them as good an outfit for the work of the world, in the way of physical and mental and moral culture, as we are able to give. If we train them to generous aims, to a love of helping others, it is not at all likely that they will treat us with unloving neglect in our old age. If our chief aim in helping them is to the end that we may afterwards be taken care of by them, we shall deserve their neglect, and our selfishness will probably be visited with poetic justice upon our hoary heads.

GETTING OUT-OF-DOORS.—Until one gets in the habit of going out for a walk every day, it seems a rather stupid thing to bundle up and go out with no ostensible errand. With many of us it seems a selfish thing (not looking deeply at the matter) to tear ourselves away from the innumerable affairs that seem to demand our constant attention in the house, and go out-of-doors simply for the sake of our own health. Rather silly, too, it seems, to go out of doors for exercise, when we are ready to drop down in consequence of too much exercise in-doors.

Many a woman freely acknowledges (as does the writer of these Topics) that everybody ought to get out-of-doors a little while each day, but how in the world can some of us accomplish this?

When I say that everybody ought to get out-of-doors each day, I mean it much in the same way as I should say that every human being ought to have a good clean bed and plenty of wholesome food; and I hope I do not sit in the seat of the Pharisees while uttering such rules, binding upon the conscience of my fellow-creatures burdens grievous to be borne, while I lift no finger to help them. If I know my own heart, these "oughts" of mine are mainly a prayer for the reign of peace and good-will on earth, and an expression of my faith that Christianity, enlightened by science, will yet give wholesome conditions to every human child. But I know too well in what a wretched state thousands of our neighbors live, how poverty binds and grinds them down, and what a mockery the rules of hygiene seem to them if thundered from a Sinai instead of whispered as a blessed gospel of promise.

Persons who have near neighbors, or who live near shops or stores, can find errands in all seasons; but my nearest neighbor is half a mile away, and often the road between is very difficult of passage. All winter the snow has been so deep and the air so cold, there has been no temptation to go out, and walks have been very easily put off from hour to hour and from day to day. (I write this in February.) The other day my home critics gave me a good berating for staying so closely in the house. One talked to me most earnestly because she really thought that my health was suffering from lack of out-door air. She thought I ought to make my walk one of the chief duties of each day, and that I was sinning greatly against my light in neglecting it so much. I showed *how* it got crowded out, and she insisted that it ought to be put foremost among duties, and let something else get the crowding out. For I live like many other mothers, with a constant accumulation of things pressing to be done as soon as possible, and with scarcely ability to get through each daily round of work. Another critic (not my husband, who has been absent since December) took up the subject, and "laid on" unsparingly, because he imagined that I was preaching hygiene vigorously in these columns, and the burden of his talk was "practice what you preach." I got considerable satisfaction out of it all, for now I feel at liberty to go for a walk as soon as I clear off the breakfast-table, before dish-washing and sweeping and all the little things that come pressing after, use up my energy, and make the lounge look more attractive than a

walk. Before this talk, I thought I must have the house in decent order for the comfort of its inmates before I turned my back upon it. And now I hope I shall not seem to critic number two so very notional as he has supposed if I let a little out-door air into the rooms where I am obliged to spend my time.

Now I have tried it, I think it an excellent plan to go out for a walk, or for garden exercise, when that is in season, before the strength is all used up by house-work. Where there are horses at leisure, and gentlemen at leisure—indeed, where there is leisure at all—the problem of how to get out of doors is made easier. I write now for busy women with many household cares. Fresh air is what such women want more than they do exercise—fresh air and rest. In warm weather—but I will speak of that another time. If the pies and doughnuts get crowded out by the housekeeper's walk or ride, she must learn how to make more simple (and more healthful) dishes. Here are recipes for a few:

WHEATLETS.—I know of no form of Graham bread sweeter than this. The sweetness comes from scalding the flour. Pour upon a quart of Graham flour enough boiling water to make a stiff dough when stirred into it. Knead dry flour into this until you can roll it out about an inch thick. Cut it into biscuits of any shape you please (but not very large), and bake them upon the clean rack in your oven, which is so hot it needs no greasing to keep the wheatlets from sticking. If you do not succeed with these the first time, try until you do, for no exact recipe can be given. "Use judgment," and cultivate it.

MUSH-BALLS.—Take cold mush of any kind—corn-meal, oatmeal, or Graham—and knead Graham flour, fine flour, or canaille into it (with a little milk or cream if you like; it is better so, but is not necessary) until it is pretty stiff. Roll it into balls two inches in diameter, or into rolls an inch and a half thick and four inches long. Bake these on the hot oven-grate.

RICE GEMS.—We have just tried Mrs. Katy Jackson's recipe for rice gems, with considerable satisfaction. Here is the rule: Soak a cup of cold boiled rice over-night in a pint and a half of milk (or water). Stir into this enough Graham flour to make a rather stiff batter, and bake in gem-pans.

Recipes.

Sausage-Meat.—By Mrs. C. W. B., Quincy, Ill.—For every pound of meat, two teaspoons powdered sage, one teaspoon powdered thyme, one teaspoon black pepper, one and a half teaspoon salt, two teaspoons ground coriander-seeds, or one teacup seeds, *not ground*, for every 20 lbs. of meat; one teaspoon saltpeter (dissolved in water) for every 12 lbs. of meat. After mixing *thoroughly*, make into cakes and fry as for the table; pack in stone jars to within two inches of the top, pour melted lard over until the jars are filled; cover closely, and they will keep a year. When wanted for the table, take out of the jars, and after taking off some of the lard that adheres to them, put into a skillet and heat through. They will be as nice as when first made. [Some might not like the coriander.—ED.]

Cooking Dried Corn.—By Kate Bowman, Stark Co., Ill.—I wash the corn in cold water, then put it in the tin or earthen vessel in which it is to be cooked; pour cold water enough on it to soak it; let it stand over night; I think it a great deal better to let it stand two nights, when I put it on the back of the stove or reservoir, where it will heat but *not boil*. Then season ready to be served. Dried corn sufficiently soaked makes most excellent soup by adding milk and butter to suit the taste, always heating it in the water it is soaked in. I think the readers of the *Agriculturist* will find this recipe for cooking dried corn proportionately as good as Mrs. Rochester's recipe for cooking beans, given in January, which I think is a most excellent way. I shall cook beans in no other way so long as butter and milk can be had.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks—About a Candle.

We were to inquire this time what became of the candle after it was burned. Nothing is ever really destroyed. You will think that a pretty strong statement, and will find it difficult at first to understand it. You will ask, Are not the candle and the wood and coal on the fire burned up and destroyed? Burned up, yes; but destroyed, no.



Fig. 1.

As candle and wood and coals they no longer exist, but they are somewhere. As with all his ingenuity man is not able to call even the smallest bit of matter into existence, neither is he able, do what he may, to put it out of existence. We can make things change their shape, and this has happened with the candle that we have burned. What was the candle has taken on another shape, if we can properly apply that name to something that we can not see.

You have burned brimstone matches and have seen the pretty blue flame with which the brimstone burns. The brimstone in burning disappears. You can no longer be sure of the presence of anything by seeing it. Your eyes do not detect the new form taken on by the brimstone. But how is it with your nose? If you can not see what became of the brimstone, your nose convinces you that it is not destroyed, and if you were to hold a red rose over a bit of burning brimstone you would see the red leaves of the rose gradually turn white. The brimstone is, you know, a solid much harder than any candle, and you can see by this experiment that in burning it disappears from our sight, but our sense of smell and the red rose tell us that it is not destroyed, but exists in another shape, in which though invisible it is very powerful. This will help us to understand how the candle can burn up and yet the material of which it was made is not destroyed.

If you hold a cold dry tumbler, goblet, or other glass vessel over the flame of a candle, you will see (fig. 1) it lose its brightness and become dim, and in a little while you will see that a dew or moisture covers the sides. You can see the same thing if you hold a cold bright spoon or other metal above the flame, but not near enough to smoke it. The glass vessel or spoon soon becomes warm and then the moisture disappears, but by a proper contrivance to keep the article cool, a considerable quantity of water could be collected from the burning of a candle. We are able, then, to show by experiment that the candle in burning forms water, or rather the vapor of water, which is invisible, but can be condensed into liquid. "How strange," you will perhaps say, "that the candle after burning is turned into water!" It will not do to be so fast. That is only a part of the truth. When the candle is burned some water is formed, but nothing like enough to account for the whole candle. At all events, we are quite sure that there is something in the candle which burning turns to water. These changes from

things that we can see to things that are invisible, like air, will strike you as strange at first, but as you learn more about such matters you will find that there are a number of most important things, like air, that we never see. Before the tallow or stearine of the candle gets quite burned, it can be made to show that it is largely composed of charcoal. Hold a cold plate against the candle flame and you will get a beautiful black spot. "Lamp-black" you will say, and so it is, and that is only another name for charcoal, and carbon is the chemist's name for the same substance, whether it is in the form of coal, lamp-black, or the diamond. Yes, it is true that the beautiful hard diamond so rare and costly is only another form of the common black coal. "Strange!" Yes, to be sure, but no more strange than that the beautiful white "star" candle should be largely made up of this same

black carbon. Take a piece of wire gauze, such as kitchen sieves are made of, and hold it over the point of the candle-flame. It cools the flame so that it can not pass through the gauze, but see what a column of this fine lamp-black passes through and rises in the air, as shown in figure 2. This must have come from the white material of the candle and set free by the heat.

When the candle burns regularly we get no lamp-black, and it is only when we cool off the flame that it shows itself. Ordinarily it burns up. Now, one more experiment, for which you will need a glass jar—a fruit-jar is just the thing—a bit of candle, a bit of wire, and two pieces of thin board or pasteboard. Fasten the inch of candle to the wire as in figure 3. Pass the other end of the wire through a small hole in one board or pasteboard, light the candle and put it into the jar, and put the board down closely for a cover, as in figure 4. Now watch what takes place. At first the jar if dry will grow dim, but you know now why that is. Soon the flame will appear less bright, then smaller and smaller, and then it will go out. Lift out the candle, and slip the other board on for a cover to keep the jar closed, light the candle, and put it into the jar again as before. It will go out at once. The jar is apparently as full of clear air as before, but a candle will not burn in it. The burning of the candle produces something besides water, an invisible something in which a candle will not burn. The jar looks to be full of common air, but let us try it. The candle refusing to burn in it shows that it is not common air, but let us try something else—some lime-water perfectly clear. Many people keep it in the house, but you can readily make it from a lump of lime. Pour some water upon a



Fig. 3.

lump of lime, and let it stand in a bottle or closed vessel until all the undissolved lime settles. The lime-water will be as clear as any other water, but pour some of it into the jar in which your candle has gone out. You will see the liquid turn milky at once, showing that the air in the jar is not common air, but contains something that has an effect upon the lime-water. The lamp black or carbon of the candle has in burning formed an invisible gas, carbonic acid, in which, even when mixed with air, a candle can not burn, and which makes the lime-water milky.



Fig. 4.

Enough has been told you to show that there are a great many curious things about the burning of a candle. But we have not told half. Something happens to the air as well as the candle, and we have not shown what it is in the candle that forms water. But this will lead to experiments that I fear most of you can not try. I will drop the subject for the present, and if I think that your parents would like to have more told about these things, I may when long evenings return take the matter up again. But now that spring has come we must turn our attention to out-door things. THE DOCTOR.

Aunt Sue's Puzzle-Box.

PATCHES, CUTTINGS, AND FRAGMENTS.

1. Change the head of an Irish boy's nickname twice and leave two others.
2. Change the head of an Irish boy's nickname three times and leave three other nicknames.
3. Change the head of a girl's nickname twice and leave two boys' nicknames.
4. Behead nothing and leave something.
5. Take two letters from an animal and leave a note in music.

ADOLPH M. NAOEL.

ARITHMOREMS.

- | | |
|------------------------|----------------|
| 1. 100200160300171100. | 4. 2505025058. |
| 2. 10015090001100. | 5. 120009. |
| 3. 2501900250. | 6. 595010. |

WORDS ENIGMATICALLY EXPRESSED.

1. Benevolent color.
 2. Furnish a century.
 3. A number of grandees.
 4. A remote article.
 5. Peel a favorite.
 6. Part noon.
- (Example.—"Cut our hair." "Barbarous" [barber us].)

CHARADE.

My first may be your mother,
And my next a mother, too;
My whole is still your mother,
Though perhaps it may be you.

PL.

Thaw si doveserl cone orf lal, dohuls eh gnol drincoseed.

CROSS-WORD.

My first is in parsley but not in thyme.
My next is in poem but not in rhyme.
My third is in muskrat but not in mouse.
My fourth is in window but not in house.
My fifth is in novel but not in old.
My sixth is in graveless but not in hold.
My whole contains, without a doubt,
What not a man can live without.

CLAYTON COLE



434. Illustrated Rebus.—It is a long time since we have had a Rebus. As spring-time is approaching, we give you one proper for the season. It is a rebusical bouquet.

NUMERICAL ENIGMA.

I am composed of ten letters.
My 2, 3, 6 is an instrument of torture.
My 6, 3, 4, 7 is a favorite bird.
My 1, 10, 8 is a powerful instrument.
My 6, 3, 4, 7, 2 is a city in Rhode Island.
My 1, 2, 3, 4, 5, 6, 7 is what prudent people do.
My whole is a city in the United States.

ORREN P. ASHWORTH.

ALPHABETICAL ARITHMETIC.

YMA)SRFAATS (PMSRY

STE

PSA

YMA

MTFA

MPFA

YFFT

MRSY

EPS

EPS

PUZZLE.

Read history, and you will see
Where I've been used extensively;
Behead, I'm what we all shall speak—
Ay, many times within the week;
Behind agalo, transpose, and lo!
Full many a lad I've brought to woe;
Behead, curtail, straightway I am
What the boy said when trouble came.

Mrs. H. J. N.

SQUARE WORD.

E. S. B. squares the word "MERIT" seven times, and proposes to STAR AND CRESCENT that they square the word "EXPOSE."

ANSWERS TO PUZZLES IN THE FEBRUARY NUMBER.

NUMERICAL ENIGMA.—Carpet.
ARITHMOREMS.—1. Skate. 2. Receive. 3. April.
4. Map. 5. Ducile. 6. Home.
ANAGRAMS.—1. Festoons. 2. Educational. 3. Grasshoppers. 4. Subterraneous. 5. Mathematicians. 6. Masquerade. 7. Sooth-sayers. 8. Society. 9. Adolescent. 10. Reinforce.
CROSS-WORD.—Lemon.



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A FRIENDLY VISITOR.—AFTER MARK FISHER AND J. D. WATSON.—*Drawn and Engraved for the American Agriculturist.*

BLANKS.—1. Wry, rye. 2. Dye, die. 3. Fair, fare. 4. Heard, herd. 5. Cent, scent. 6. Knows, nose.

PUZZLE.—The letter E.—1. Emente (mute). 2. Elong. 3. Elate. 4. Elide. 5. Egad. 6. Emu (mew). 7. Eclat (claw). 8. Elapse.

AMPUTATIONS.—1. Jonah, Noah. 2. Tant, ant. 3. Spinel, spine. 4. Peony, peon. 5. Pixy, pix. 6. Apiastre, piastre. 7. Sagum, agum. 8. Heron, Nero.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

C. D. F.—Thanks—but we do not want any but original puzzles for our Puzzle-Box.

EUGENE S. wants to know what the Hebrew proverb means, "It is not as thy mother says, but as thy neighbors say." I think that many old proverbs give very bad advice; but I suppose this one means that you had better trust the opinion of neighbors than that of a too indulgent mamma.

MORRIS WHITE.—Many of our subscribers take both *Hearth and Home* and the *Agriculturist*—therefore I never put the same puzzle in both papers.

All communications containing puzzles or answers should be sent to AUNT SUE, Box 111, P. O., Brooklyn, N. Y.

Thanks for puzzles, letters, etc., to Minnie T. B., Harry H. D., Louie and Hattie W., Carrie H., A. W. P., J. E. F., B. R. S., Owego, and Bennie F. (any relation to *benefit*?)

A Friendly Visitor.

I think you will all agree with me that this is a pleasing picture. It was painted by two celebrated artists away at the other side of the Atlantic. When at work at it I do not suppose they thought that an engraved copy of it would give pleasure to hundreds and thousands of boys and girls in a far-off country, and that

bright eyes in town and village, in old farm-houses in the Eastern States, in new farm-houses and often log-houses in the far West, in houses on the Pacific coast of our own country, and in Japan, China, Australia, and Africa, would look lovingly on their picture, and still less did they think that it would return in the *Agriculturist* to many children upon the farms of their own England. What a wonderful thing a newspaper is! How it goes and goes—at least the *Agriculturist* does—and sets so many people to thinking the same thing, and by people I mean boys and girls as well as the older ones. How should we have any people were it not for the boys and girls? This picture reminds me of a visit I made last summer to a gentleman who lives about five miles from my place. After resting awhile we started for a walk over his farm. We went first to the barn-yard, and to my surprise the ducks, fowls, turkeys, and geese all came marching up to us, each with a note of welcome after its kind. My friend said a few pleasant words to them, and we went on to the barn. Here was a beautiful colt, as bright and as handsome as could be. He began to rub his owner with his nose, and soon that nose found its way to a pocket where a lump of sugar was ready to reward his search. Then we went to the pastures, and a call brought several cows, two oxen, and a dozen or so sheep up to the bars. I now saw why my friend had put several apples into his pocket at starting. Each ox, cow, and sheep had a slice of sweet apple, being called by name, and receiving a few words of petting as it came up for its share. There was not an animal upon the place that did not know its master's voice and step. How different was this place from some that I have visited, where the human animals seemed to be in a constant state of war with the dumb ones, where rude shouts, coarse words, and even blows made the animals shy and distrustful!

You see now why this picture reminds me of that pleasant visit. The girl in the picture makes friends of

and is loved by the animals around her. Do not you think that our domestic animals like human society? I do—that is, when they find that they can gain anything by the association. If they find that keeping company with human beings is likely to injure their manners and morals, the animals sensibly decline it. You never see one fond of a rude or cross boy or girl. Just be as gentle as the animals, and you will soon see how they appreciate it. These sheep have an abundant supply of food in their pasture, all and more than they can eat; yet this good girl knows that if she were fed day after day for weeks together upon gingerbread or even cake, she would welcome a cracker or a biscuit. She thinks, if their owner does not, that the sheep would like a variety, and she fills her apron with the leaves of cabbage or lettuce and goes to give them a treat. She is indeed a "welcome companion," and the sheep show as far as their quiet natures will allow how gladly they accept her visit. You must study the natures of animals, and you will find that they have different ways of expressing pleasure. You must not expect a sheep to frisk and bounce like a dog, or to rub against your legs and purr like a cat, but look at their faces, and you can tell by their quiet expression when they are pleased. You all recollect that rhymed story about one Mary who was the possessor of a "little lamb." Probably not a child in the country but what knows it. It was taught to me nearly half a century ago, and I suppose it is being taught yet. I may have forgotten most of the verses, but here is one which I have not forgotten in all these years, and which it will be well for all of you to remember. It is:

"And you each gentle animal
In confidence may bind,
And make it follow at your call,
If you are always kind."

"Always kind," that is the whole story—and do not apply it to animals alone. THE DOCTOR.

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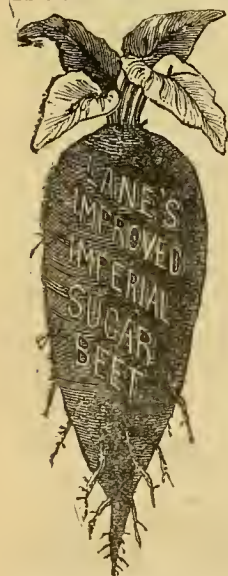
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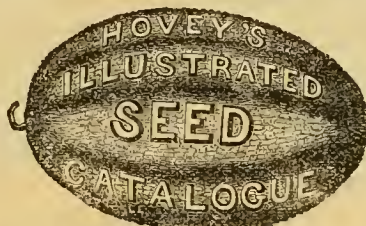
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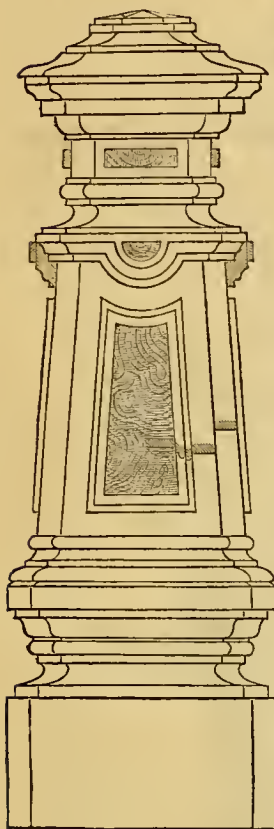
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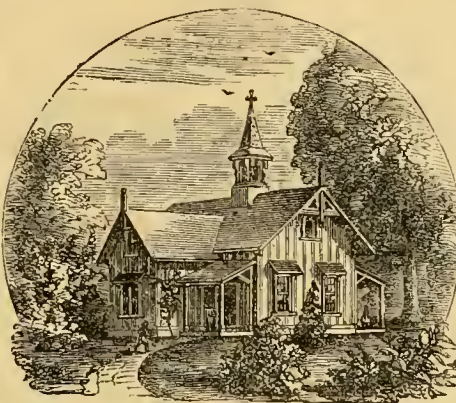
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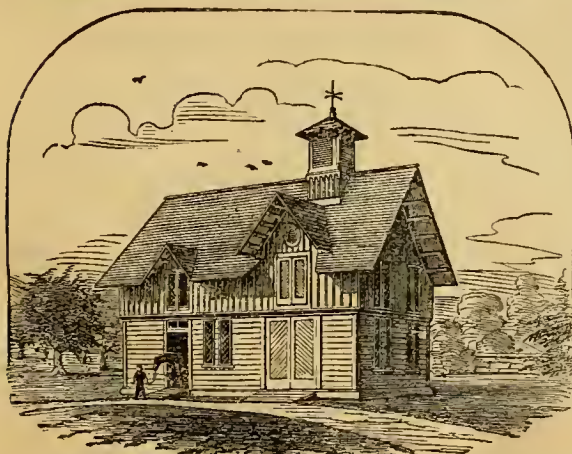
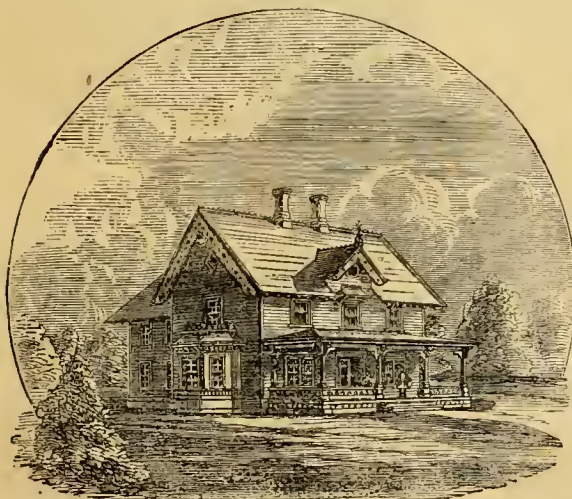
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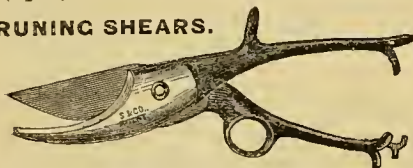
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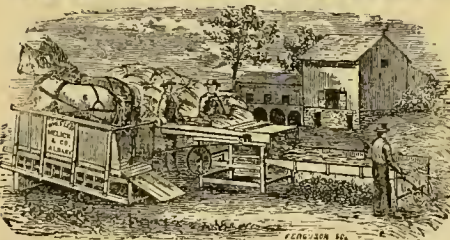
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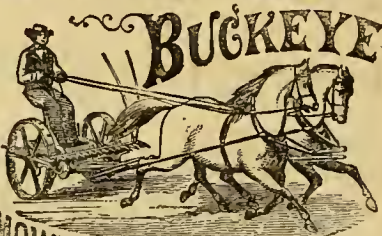
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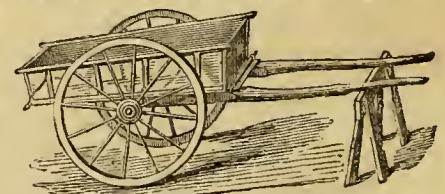
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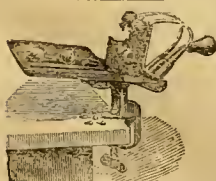
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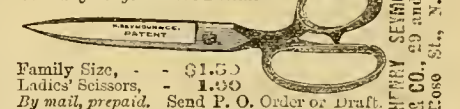
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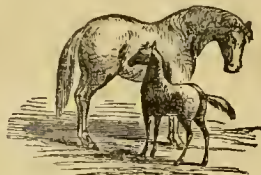
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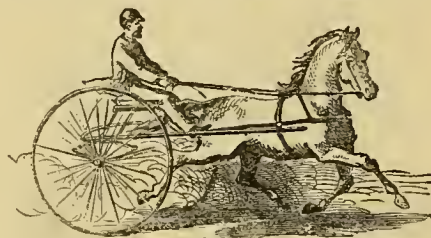
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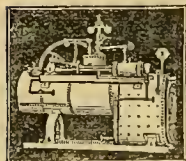
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5	Pocket Knife (Meriden Cutlery Co.)	\$1 50	4 11	3 11	3		
6	Pocket Knife (do. do.)	\$2 75	6 22	4 11	4		
7	Pocket Knife (do. do.)	\$2 75	6 22	4 11	4		
8	Ladies' Pocket Knife (do. do.)	\$2 00	6 22	4 11	4		
9	Multum in Parvo Knife (do. do.)	\$3 50	8 30	5 15	6		
10	Cake Basket (Lucius Hart Man'y'g Co.)	\$12 00	19 05	10 23	11		
11	Revolving Butter Cooler (do. do.)	\$8 00	16 52	8 28	9		
12	Card Receiver (do. do.)	\$12 00	19 05	10 23	11		
13	Nut-picks and Crackers (do. do.)	\$8 00	16 49	8 28	9		
14	Half-Dozen Napkin Rings (do. do.)	\$8 00	16 49	8 28	9		
15	One Dozen Teaspoons (do. do.)	\$6 00	15 45	8 28	9		
16	One Dozen Tablespoons (do. do.)	\$12 00	19 05	10 23	11		
17	One Dozen Table Forks (do. do.)	\$12 00	19 05	10 23	11		
18	Child's Cup (do. do.)	\$3 25	7 27	4 11	5		
19	Gold Pen, Sil. Case (George F. Hankes)	\$3 25	8 30	5 15	6		
20	Gold Pen and Silver Case (do. do.)	\$5 00	12 57	7 10	8		
21	Gold Pen, Handle gold-tipped (do. do.)	\$6 00	15 45	8 23	9		
22	Ladies' Gold Pen and Rubber Case (do. do.)	\$6 00	15 45	8 23	9		
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24	Paragon Pat. Revolving Pencil (do. do.)	\$8 00	8 30	5 15	6		
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30	Sewing Machine (Florence)	\$55 00	74 286	27 145	35		
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38	Piano, Splendid 7-oct. (Steinway & Sons)	\$450 00	625 160	313 815	334		
39	Silver Watch (American Watch Co.)	\$30 00	50 165	20 85	33		
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44	Hand Cultivator & Weeder (Comstock)	\$9 00	17 54	9 29	14		
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46	Family Scales (Fairbanks & Co.)	\$14 00	21 70	11 35	13		
47	Building Blocks (Crandall)	\$2 00	5 20	3 10	4		
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52	Any Three do. do. do.	\$5 25	13 57	7 19	7		
53	Any Four do. do. do.	\$7 00	15 47	8 24	9		
54	Any Five do. do. do.	\$8 75	17 54	9 27	10		
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63	Any Five do. do. do.	\$12 50	21 71	10 36	12		
64	Any Six do. do. do.	\$15 00	24 82	12 41	14		
65	Any Seven do. do. do.	\$17 50	27 92	14 46	16		
66	Any Eight do. do. do.	\$20 00	30 102	15 51	17		
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70	Farmer's Boy's Library	\$5 00	16 33	8 17	7		
71	Farmer's Boy's Library	\$8 25	20 65	10 32	9		
72	Farmer's Boy's Library	\$15 75	25 35	13 42	11		
73	Farmer's Boy's Library	\$20 00	30 102	15 51	17		
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76	(Each add'l Volume at same rate.)	Unbound, Post-paid.	16 50	8 28	9		
77	\$10 Library (Your Choice)	\$10 00	18 58	9 29	10		
78	\$15 Library do.	\$15 00	24 85	12 43	14		
79	\$20 Library do.	\$20 00	31 106	15 53	18		
80	\$25 Library do.	\$25 00	38 125	19 63	21		
81	\$30 Library do.	\$30 00	44 144	22 72	25		
82	\$35 Library do.	\$35 00	50 162	25 81	28		
83	\$40 Library do.	\$40 00	56 177	28 89	31		
84	\$45 Library do.	\$45 00	62 192	31 96	34		
85	\$50 Library do.	\$50 00	68 207	34 104	38		
86	\$55 Library do.	\$55 00	74 221	37 111	41		
87	\$60 Library do.	\$60 00	80 235	40 118	45		
88	\$65 Library do.	\$65 00	86 249	43 125	49		
89	\$70 Library do.	\$70 00	92 263	46 132	53		
90	\$75 Library do.	\$75 00	98 277	49 139	57		
91	\$80 Library do.	\$80 00	104 291	52 146	61		
92	\$85 Library do.	\$85 00	110 305	55 153	65		
93	\$90 Library do.	\$90 00	116 319	58 160	69		
94	\$95 Library do.	\$95 00	122 333	61 167	73		
95	\$100 Library do.	\$100 00	128 347	64 174	77		
96	Choice of Good Books (See Description)	\$25 00	38 125	20 67	21		
97	Breach-loading Shot-gun (Remington)	\$25 00	38 125	20 67	21		
98	Single-barrel Shot-gun (do.)	\$30 00	46 152	23 83	26		

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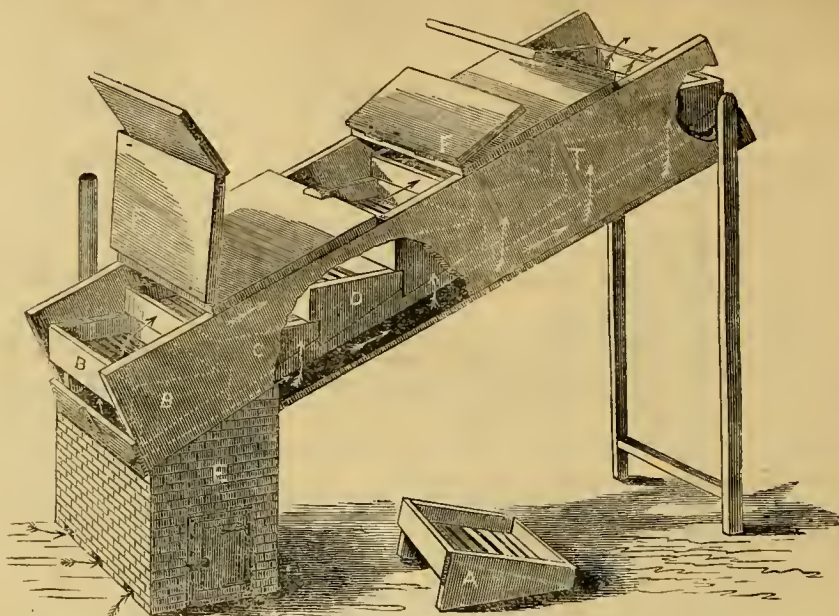
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VOLUME XXXII.—No. 5.

NEW YORK, MAY, 1873.

NEW SERIES—No. 316.



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A MOVING-BEE.—FROM A SKETCH BY R. E. ROBINSON.—Drawn and Engraved for the American Agriculturist.

Those who live in cities, where moving is a frequent if not an annual occurrence, look upon "moving time" with feelings of dismay. To them "moving" is no season of jollity, as it was not many years ago in the older parts of the country. If a farmer wished to place his barn or out-buildings in a better situation, and sometimes when he wished to change the location of his dwelling, he called together his neighbors on a given day for a "moving-bee." Like a "raising" or logging in new countries,

it was understood that the "moving" would be a judicious mixture of work and frolic. The building to be moved was prepared beforehand by a carpenter, who would put runners under each of the side-sills. These runners were sticks of timber from which the bark and protruding knots had been removed, and rounded up at the ends. These were firmly connected by cross-pieces at each end, and securely fastened to the sills by pins and chains. If necessary to keep the building from racking,

"stays" were placed inside. The assembling neighbors brought their oxen, which were hitched to the ends of the runners in two strings of from eight to twenty yoke each. All being ready, the procession started for its destination under the direction of the carpenter. While the moving was going on, the farmer's family were busy in the kitchen, and a feast crowned the work of the day. At present we have methods of moving buildings which, if more rapid and less laborious, are also less jolly.

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Salt and Plaster for Grass.—

"H. P. M." Walworth, Wis., asks if it will pay to use salt and plaster for grass. The salt cost him 1½ cent per pound, and the plaster ½ cent.—Use the plaster alone, 100 pounds per acre. Try the salt on a few rods, at the rate of one pound to the square rod. As a rule, it will not pay to use salt for manure at \$30 per ton.

Calendar for May.

Day of Month.	Day of Week.	Boston, N. Eng., land, N. York State, Michi- gan, Wiscon- sin, Iowa, and Oregon.			N. Y. City, Cal. Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken- tucky, Missou- ri, and Cali- fornia.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
1	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
2	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
3	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
4	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
5	S	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
6	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
7	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
8	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
9	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
10	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
11	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
12	S	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
13	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
14	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
15	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
16	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
17	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
18	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
19	S	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
20	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
21	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
22	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
23	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
24	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
25	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
26	S	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
27	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
28	M	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
29	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
30	T	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00
31	F	5:57	6:50	6:00	5:56	6:50	6:00	5:56	6:50	6:00

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.	CHICAGO.
1st Quart	10 49 m.	7 37 m.	7 25 m.	7 13 m.	6 43 m.
Full Moon	12 64 m.	6 22 m.	6 10 m.	5 58 m.	5 28 m.
3d Quart	19 6 m.	6 4 m.	5 52 m.	5 40 m.	5 10 m.
New Moon	26 46 m.	1 24 m.	1 12 m.	1 0 m.	3 30 m.

AMERICAN AGRICULTURIST.

NEW YORK, MAY, 1873.

We are sometimes asked, "How early will it do to sow this or that crop?" A more important question with many of us is, "How late will it do to sow or plant?" On our own farm, we aim to get in our crops as early as possible. If the land is in good working order, we have never sustained any injury from too early sowing or planting. But it is a rare season when we are able to sow as early as we wish. As a rule, do what we will, it is not an easy matter to get in the seed at what we consider the best time. And we have to run more or less risk from late sowing and planting. In looking over our diary, we find that we commenced sowing barley in 1866 on the 12th of April, the land being, according to the record, "in prime order." But after this, owing to rainy weather, the work dragged; and we did not finish sowing until May 1st. We sowed field peas May 1st and 2d; planted potatoes May 5th to 11th; corn, May 17th to 22d.

In 1867.—Commenced plowing April 12th. Drilled in barley April 18th. Planted field potatoes May 17th-25th. Commenced to plant corn June 5th, and finished June 12th. Planted potatoes (in another field) June 16th—and had a good yield. Planted beans June 15th. Commenced cutting clover June 28th; wheat, July 16th.

In 1868.—Commenced plowing on corn-stubble for barley March 26th. Finished the field of 15 acres March 29th. Commenced sowing March 31st. This was a remarkably early season; but we did not get through sowing our spring grains (barley, oats, and peas) until April 25th. "May 3d, asparagus just coming through the ground." Commenced planting potatoes May 6th—finished June 4th. Set out tomato plants from pots May 23d. Commenced planting corn May 28th; finished June 2d. "First green-peas from garden, Carter's First Crop, June 19th." Planting field beans June 11th. Commenced cutting clover June 24th; wheat, July 16th.

1869.—April 15th, sowed three bushels Arnautka spring wheat from Department of Agriculture—a miserable crop. April 16th, plowing for and sowing oats. April 17th, four teams plowing in fall-

low for barley. April 22d, drilled in the barley. This was quite as good a crop as that sown in March, 1868—over 50 bushels per acre. April 27th, harrowing winter wheat and sowing clover seed. May 1st, drilling in oats. May 10th, planting potatoes. May 12th, plowing for corn. May 13th, commenced drilling in corn, close up to the plow. Finished planting corn June 2d. June 22d, first green-peas from garden. July 5th, commenced cutting clover. July 19th, gathered the turnip seed. July 29th, commenced cutting wheat with two reaping-machines. July 31, cutting six-rowed barley. August 3d, thrashing wheat as it was drawn in from the field.

1870.—Commenced plowing April 14th, but the frost was not fairly out of the ground, and had to stop. May 18th, planting corn. May 20th, planting potatoes, and finished May 28th.

1871.—April 10th, drilled in ten acres of oats and peas—three bushels of peas and one bushel of oats per acre. April 12th, two teams plowing on fallow for mustard and rape. April 22d, weighed five grade Cotswold-Merino lambs, nine weeks old—average 49 lbs. each. April 25th, cultivating fall-plowed corn-stubble land for mangel-wurzel. April 25th, sowed Montana spring wheat, also Rocky Mountain spring wheat, received from Department of Agriculture (both a failure). April 26th, began plowing for corn. May 8th, ridging for mangels; finished sowing mangels May 12th. May 19th, a few mangel plants, the first sown, just commenced to break the ground. May 22d, planting potatoes and corn. May 29th, sowed plaster and ashes on the corn, which is just up. June 1st, commenced to hoe mangels; owing to the dry weather, they came up very irregularly. June 6th, planted corn on low land. June 9th, plowing fallow second time. July 3d, commenced cutting clover. July 15th, commenced cutting wheat with one machine; cut and bound 12 acres the first day. July 20th, plowing fallow third time, and sowing rape. July 26th, sowed white mustard. July 28th, commenced cutting oats and peas—at first with short-bladed scythes, but found it slow work; tried a Johnston reaper, and found that the machine cut the crop, which was a very heavy one, quite as well as we could cut it with scythes.

Last year the spring was about two weeks later than the year before. We did not sow mangels until about the first of June, but we soaked the seed, and the plants were ready to single out quite as early as the crop of 1871, sown three weeks earlier.

We will not trouble our readers with further details. We give these brief extracts from our diary to show the usual range of the sowing and planting season on our own farm.

Hints about Work.

These monthly Hints are written on the farm alluded to above, but we aim to make them generally useful. If some of our readers are harvesting wheat when we are talking about planting corn, they must bear in mind the difference in climate.

How to Row and Plant admits of greater diversity and a far greater chance for improvement than when to plant. The seasons are, to a great extent, beyond our control, but the chemical and mechanical principles of agriculture are everywhere the same, and we should study to adapt them to the character of the soil and climate. Much of our success will depend on our ability to economize our own strength and energy and the strength of our men and teams. The more thoroughly we study scientific and mechanical principles the greater will be our ability to save labor.

"*Much Work with Little Labor*" should be the motto of every intelligent American farmer.

High Wages are a great blessing, provided the men can earn them. Temporary high prices, whether of wages or of commodities, obtained by strikes or combinations which check production, are a curse to individuals and communities.

The Best Men are the Cheapest.—Every experienced farmer knows this to be the case; and yet it is rare

that we discriminate sufficiently. We are too much inclined to pay all the men alike. This may not be unjust to the good men, but it is doing ourselves an injustice. Better let the stupid, plodding dallards go to work on the railroads.

Brains as well as Muscles are required on the farm. This is getting to be more and more the case every year with the introduction of more and better machinery.

Horses are Cheaper than Men.—Some learned ignoramus has said that a horse requires for his support the produce of five times as much land as a man. It is not true—unless you feed the man on hay and oats! Steam is cheaper than horses, and horses are cheaper than men, for the simple reason that coal is cheaper than hay and oats, and hay and oats are cheaper than beef, mutton, pork, butter, cheese, and bread.

Do not Walk when you can Ride.—We have seen a man weight down a roller with stones and then walk behind. Let the horses go right along for a few hours. Then let them rest, and you can go to work.

Husband your Strength when you can, and use it freely when you must. We do not like to walk 14 miles a day, after two horses, on soft ground, to harrow eight acres, when we can just as easily drive four horses and harrow sixteen acres by walking the same distance.

Double Plows will certainly come into general use for the same reason.

Two-Horse Cultivators, that take two rows at a time, have not as yet given much satisfaction on our own farm, owing to the difficulty of steering them. But this difficulty will soon be overcome.

Thomas's Harrow, until we get something better, is a useful implement in killing weeds in corn and potatoes. The real point is to use it as soon as the weeds germinate. Go over the field two or three times, or until every young weed is killed.

Cultivating Corn and Potatoes costs more than most farmers realize. We should use the best cultivators, and do the work carefully, thoroughly, and frequently.

Gypsum or Plaster may be applied to corn either before or at the time of planting, or it may be scattered on the plants after they are up.

Planting Corn is the great work of this month. We have written so much on the subject that it is unnecessary to give further directions here. Aim to put the land in good condition, and plant early. If you must plant late, select the small, early varieties of corn. Whatever you do or fail to do, do not neglect to keep your corn free from weeds. Clean, mellow land is the great secret of success in growing corn.

Potatoes as a rule are not planted early enough. Plant early and deep, and use the harrow freely to kill small weeds before the potatoes come up, or just at the time they are coming through the soil. We have used Thomas's harrow on potatoes until they are several inches high.

Horses are required to work very hard this month. Feed liberally, and be very careful to clean them after the day's work is done, so that they will get a good, comfortable night's rest.

Cows until turned out to grass should have good hay, and three or four quarts of bran, and one or two quarts of corn-meal per day; and it would be well to continue the bran and meal, mixed with a peck of cut hay, for a week or two after the cows are turned out to grass.

Sheep should have all the hay they will eat at this season. The grass is very succulent, and is apt to produce scours. Bring the sheep into the yards during storms, but be careful that the yards and sheds are dry and clean. Keep the sheep carefully tagged.

Ewes and Lambs should be comfortably housed at night and during storms. Nothing is so bad for them as wet fields and rainy weather. Feed the ewes liberally, and let the lambs have some bran and oats placed in small troughs separate from the

ewes. A few sliced mangels are excellent for lambs at this season.

Swine are to be managed according to circumstances. In this section we usually keep only pigs enough to consume food that would otherwise be wasted. But if we keep pigs at all we should keep them well. A young, growing pig should have all the food of some kind that it will eat and digest. If the refuse of the house and barns and dairy are not sufficient for this purpose, we should feed more or less grain. If possible, let all the swine have the run of a good clover or grass pasture. Sows that have had pigs this spring, and which are to be fattened and sold next fall, ought to have more or less grain all summer. Breeding sows will keep in good condition on clover alone.

Sucking Pigs when from three to four weeks old should be fed separately from the sow. Fresh skimmed milk is excellent. Give also some oats, either whole or ground, or corn-meal, or soaked corn, or, in short, anything they will eat.

Weaning Pigs.—If the sow is to have another litter next fall, it is desirable to wean the pigs as early in the month as possible. But it is not good for the little pigs to wean them before they are six weeks old. Wean them gradually, and give a little new milk for a few days and fresh skimmed milk afterwards. If the sow is not to have another litter until next spring, it will be well to let the pigs run with her as long as she will give any milk. It will have a tendency to improve her milking qualities.

Young Pigs are Scarce this spring, and are likely to be still scarcer next fall. It will pay to give them good care and liberal treatment.

Get a Thorough-bred Boar of some of the improved breeds. This, with good care and feed, will soon give you a superior stock of swine. The small cost is nothing compared with the benefit.

Work in the Horticultural Departments.

Not only is the bulk of the sowing and planting to be done this month, but marketing also demands a share of attention from those who grow fruit and vegetables for sale. Those who send produce to market should take pains to find out the best methods of packing, and the styles of packages that are most popular in the proposed market. The kind and size of package, and the manner in which the produce is put up materially affect the sales. The necessity of assorting everything—whether vegetables or fruits—can not be too often insisted upon. The poorer quality should be kept at home, or sent to market distinctly marked as seconds. If good and bad are mixed together the whole will sell at only the price of the poor. Where there are several hands much time and money will be lost if they lie idle during the frequent rains that occur this month. As a matter of economy as well as discipline, have some work provided under cover that can be taken up in stormy days. In successful gardening the land is kept constantly occupied; as soon as one crop is off manure is applied, and it is made ready for another.

Orchard and Nursery.

Planting.—By this time most of the labor of planting will be finished, though trees that have been heeled in can be safely planted out until the middle of the month.

Grafting is sometimes performed as late as this, though great care needs to be exercised to avoid making wounds in the tree which are not easily healed, as at this season the bark separates very easily. All wounds should be covered with melted grafting wax, shellac-varnish, or paint.

Young Trees planted out this spring need to have the soil kept mellow around the roots. Keep the soil of a young orchard plowed, and let some crop which needs constant culture be planted between the rows. Supply such an amount of manure for the growing crop that the young trees will not have their growth checked from want of nutriment.

Mulch.—A good mulch around newly-planted trees will be serviceable in keeping the roots from drying out. Salt-hay or anything which will prevent the sun from striking the soil around the trees, will answer, even if it be only a small heap of stones.

Seed-beds.—All seeds of trees and shrubs should be sown by the middle of this month, except those which require to be sown as soon as they ripen. Shade with lattice-work made of laths, and support the ends on bricks to allow the air to circulate freely around the seedlings.

Nursery Trees.—Attend to those budded or grafted last year, and rub off all shoots which have started upon the stocks before they become large enough to require cutting.

Insects must be destroyed if healthy trees are expected, and the earlier this is done the easier it will be to discover and take means to kill them. Canker-worms and tent caterpillars are most destructive to the trees; directions have been previously given how to destroy them, while the manner of entrapping the Codling-moth, so destructive of fruit, is given on page 184.

Fruit Garden.

Currant Bushes.—The currant-worm makes its appearance this month and next, and the bushes should be dusted with powdered white hellebore as soon as it is discovered. Young plants ought to have been set out last month, but they may be moved early this month if care is taken to mulch them properly. Keep the soil well-cultivated between the rows, and thin out the old wood.

Strawberries.—Plants mulched in the fall should be looked to to see that their crowns are properly uncovered, and those which were not covered will need a mulch of cut straw or leaves to prevent the rains from washing the soil upon the fruit, thus making the berries for the most part unsalable. See directions for picking and marketing on page 181.

Grape-Vines.—Keep the new growth tied to the trellises to prevent the wind from breaking off the shoots. Layers may be made by bending down canes of last year's growth, and covering with earth; in the fall the roots will have formed on the plants, and they may then be taken up and set out.

Raspberries and Blackberries.—Cut off the old fruiting canes, if not done last fall, and burn, and tie up the new growth to stakes or wires.

Kitchen Garden.

Asparagus.—The crop will be at its height this month. Those who wish to market it will find directions for cutting and packing on page 182.

Beans.—Put in the early sorts of snaps when night frosts are over, and by the middle of the month it is usually safe to plant the pole varieties. The poles should be set first, and the beans then planted around them. The rows should be four feet apart, and the hills the same distance.

Beets and Carrots will need weeding and thinning as soon as the rows can be seen; the thinnings of the beets answer for greens, and some persons sow a few rows very thick for this purpose only.

Cabbages and Cauliflowers.—Keep the early crop well hoed; sow seeds of the later sorts in seed beds for late planting.

Celery.—Sow in seed-bed to furnish plants for setting in July; the dwarf sorts are preferable.

Corn.—Plant early sorts of sweet-corn as soon as all danger from frost is over. The best plan is to sow in drills three feet apart, and afterwards thin the plants to a foot apart in the rows.

Cucumbers.—Plant seeds in frames and in the open ground, using plenty of seed to allow the bugs a share. A frame like the one described in the April *Agriculturist* will be found very effective in preventing the attacks of the striped bug. A hand-light may be placed over a few hills to secure some extra early fruit.

Egg-Plants.—These are very sensitive to cold, and should not be set out until the weather has become quite warm. If the plants are in pots they may be

turned out and planted, so that they will scarcely feel the change.

Herbs.—Sow in seed-boxes, and when large enough to handle set out in rows 18 inches apart allowing 10 inches between the plants.

Lettuce.—Ground from which the first crop has been taken should be spaded and some other crop planted. Set out plants for use later.

Martynia.—Set out plants or sow seed in hills two feet apart each way; the pods make excellent pickles if picked before they become tough.

Melons.—Treat the same as recommended for cucumbers.

Onions.—Sow the seed at once if not already done; weed the beds which are already up. It is a good plan to sow a few radish seeds with the onions, as this will allow of their being weeded much sooner than if the onion-seed was sown alone.

Parsley.—Sow in seed-beds, and prick out as soon as large enough to handle. It germinates slowly.

Parsnips.—Thin and weed out the plants as soon as large enough.

Potatoes.—Cultivate and hoe as soon as they show above ground. A dressing of ashes or plaster will be found to promote the growth. Plant for late crops.

Pears.—Brush those varieties already up before they get large enough to fall down. Plant for medium and late.

Peppers require the same treatment as egg-plants.

Rhubarb.—Never cut the stalks, but give a slight twist and pull, and the stalk is easily separated from the plant.

Spinach.—Sow for late. Sow seeds of New Zealand spinach for summer use.

Sweet-Potatoes.—Prepare ridges for the plants, and give plenty of manure; make the ridges 30 inches apart, and set the plants 15 inches in the rows. The plants can usually be bought so cheaply that it will not pay to raise them if but a few are wanted. Southern Queen is considered the best variety for Northern gardens.

Squashes.—Plant the first sorts in hills 4 feet apart each way; for late varieties 8 feet is not too much. Use plenty of seed to insure a stand.

Tomatoes.—Set out when the weather has become settled and the ground warm, putting the plants 3 or 4 feet apart. In garden culture some trellis or support is needed to keep the fruit from touching the ground.

Manure.—Save every material from which manure can be made, and in a few years the soil will show signs of the care bestowed upon it in extra crops.

Weeds.—See that all due care is taken to prevent the weeds in the fence-rows and corners from going to seed, as the labor of the year will be lightened if no weeds are allowed to go to seed. The gardener is obliged to exterminate the weeds that grow among his crops, but he is very apt to neglect the road-sides, fence-corners, and such places, which keep up an abundant supply of weed-seeds.

Flower-Garden and Lawn.

Lawns.—The lawn will need a careful raking, and afterwards to be rolled with a heavy iron roller. Before rolling sow grass-seed upon the bare spots where the turf was killed or injured during the winter. When the grass is long enough to need cutting, a lawn-mower is necessary, although a good mower can mow a small lawn neatly with a scythe.

Evergreens.—Plant this month, using every possible care not to allow the roots to become dry through exposure to the wind. Do not set so close that they can not develop into well shaped trees.

Flower-beds on the lawn and in the garden should be spaded up and manured where necessary. Where new beds are to be cut in the lawn, drive down small stakes at short distances to preserve the outline.

Seedlings.—Set out young seedlings of annuals which have been started in hot-beds, and sow seeds in the open ground.

Bedding Plants may be put out when all danger from frost is past. If dry, water after planting.

Dahlias and Tuberoses. Start bulbs to be planted out by the end of the month, as they do best when started in heat.

Borders should have manure worked in around the plants if the soil is poor.

Greenhouses and Window-Plants.

If care is not exercised in selecting plants to set out of doors the greenhouse is liable to look shabby. The aim should be to keep everything neat, and plants in good health, and have them so arranged as to please the eye in summer as well as in winter. Large plants such as Palms, Yuccas, etc., may be set upon the lawn where they will give a sub-tropical appearance to the grounds, but be sure and supply plenty of water so that they will not suffer from drouth.

Punging.—There are many plants which can be plunged in the border without removing them from the pots; in the fall they may be readily taken up and transferred to the greenhouse.

Camellias.—If a shed or other shade is near the greenhouse the plants may be taken out during the summer, or the glass may be white-washed and plenty of air supplied so that they need not be moved.

House-plants will need care to keep them clean and free from insects. If they can be showered from a fine rose once or twice a week it will do much towards keeping them healthy.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending April 12th, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butt.	Butt.	Butt.
25 d's this mth.	191,000	267,000	381,000	2,750	50,000	643,000			
23 d's last mth.	179,000	262,000	375,000	2,100	61,000	666,000			
SALES.									
25 d's this mth.	225,000	647,000	1,395,000	4,500	187,000	1,115,000			
23 d's last mth.	188,000	563,000	1,265,000	—	91,000	1,086,000			
2. Comparison with same period at this time last year.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butt.	Butt.	Butt.
25 days 1873.	191,000	267,000	381,000	2,750	50,000	643,000			
26 days 1872.	181,000	141,000	476,000	8,500	239,000	393,000			
SALES.									
25 d's 1873.	225,000	647,000	1,395,000	4,500	187,000	1,115,000			
26 d's 1872.	213,000	1,083,000	1,377,000	112,000	338,000	959,000			

3. Stock of grain in store at New York.									
	Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.	Butt.	Butt.	Butt.
Apr. 7, 1873.	886,207	886,207	75,819	83,680	665,568	173,392			
Mar. 10, 1873.	671,197	2,515,892	37,392	208,193	846,596	106,392			
Feb. 10, 1873.	805,561	3,189,195	39,580	468,934	919,134	175,100			
Jan. 13, 1873.	1,177,339	4,743,961	44,039	511,051	1,367,787	175,805			
Dec. 9, 1872.	1,395,975	5,675,730	51,665	624,554	1,605,565	215,826			

4. Exports from New York, Jan. 1 to April 10:

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Peas.
1873.	296,843	1,000,712	3,182,533	1,004	11,830	6,162	13,380
1872.	317,801	1,875,515	3,579,949	170,310	—	8,730	67,317

Gold has been as low as 115½, and as high as 119½—closing April 12th at 119, as against 115½ on Mar. 13th. The wide fluctuations in gold, and the extreme stringency in the Money market, have been decidedly depressing and injurious to legitimate business. The movements in Breadstuffs have been very moderate as a rule, and prices have favored purchasers, with holders offering supplies rather urgently. The home trade demand has been confined within very narrow limits. There has been a comparatively fair export inquiry noted for shipping grades of Flour, spring Wheat, and mixed Western Corn, but the low rates current for foreign exchange, and the firmness in ocean freights, especially to British ports, have impeded the execution of orders for stock on foreign account. Toward the close, the general market seemed steadier, with less eagerness on the part of holders to realize, and a somewhat more confident call from shippers, in view of the more favorable foreign advices. Provisions have been generally firmer in price, with lighter offerings of stock, particularly of hog products, and a good demand noted largely on speculative account. Cotton has been moderately active, but irregular in price, closing somewhat stronger, especially for forward delivery. Wool has been further reduced materially in price, under a pressure to

sell, while the demand has been on a restricted scale, though, at the close, more disposition to purchase was apparent at the ruling figures. The extraordinary tightness in the Money market has been adverse to free dealings, and decidedly against the interests of sellers, as to values. Tobacco has been moderately inquired for at steady rates. Hay, Hops, and Seeds, have been very quiet, at the current quotations. Straw has been scarce and in request.

CURRENT WHOLESALE PRICES

	Mar. 13.	April 12.
PRICE OF GOLD.	115½	119
Flour—Super to Extra State	\$6 00 @ 8 40	\$5 00 @ 8 25
Super to Extra Southern	6 10 @ 13 00	6 10 @ 12 75
Extra Western	6 90 @ 13 00	6 90 @ 12 75
Extra Genesee	8 50 @ 10 50	8 30 @ 10 50
Superfine Western	6 00 @ 6 75	6 00 @ 6 60
LYE FLAKE	3 65 @ 6 00	4 10 @ 6 00
CORN-MEAL	0 00 @ 3 35	3 00 @ 3 75
WHEAT—All kinds of White.	1 80 @ 2 15	1 85 @ 2 25
All kinds of Red and Amber.	1 45 @ 2 00	1 35 @ 2 00
CORN—Yellow	65 @ 67	64 @ 66
Mixed	63½ @ 65½	63 @ 65½
OATS—Western	46 @ 52½	48 @ 56½
State	47 @ 52½	50 @ 56½
LYE	85 @ 95	87 @ 93
BARLEY	75 @ 1 25	73 @ 1 35
HAY—Bale, 100 lbs.	1 10 @ 1 65	1 00 @ 1 45
STRAW, 100 lbs.	70 @ 1 35	55 @ 1 20
COTTON—Middling, 50 lb.	20½ @ 21½	19½ @ 20½
HOPS—Crop of 1873, 50 lb.	40 @ 55	40 @ 55
FEATHERS—Live Geese, 50 lb.	50 @ 75	50 @ 75
SEED—Clover, 50 lb.	8½ @ 9	8½ @ 9
Timothy, 50 bushel.	3 50 @ 4 00	3 50 @ 3 87
Flax, 50 bushel.	2 20 @ 2 30	2 20 @ 2 35
SUGAR—Refined & Grocery 50 lb.	8 @ 10½	7½ @ 10½
Molasses, 50 gal.	20 @ 25	20 @ 25
New Orleans, 50 gal.	56 @ 55	55 @ 55
COFFEE—Rio (Gold), 50 lb.	17½ @ 20½	16½ @ 19½
TOBACCO, Kentucky, &c., 50 lb.	7½ @ 15	7½ @ 15
Seed Leaf, 50 lb.	8 @ 50	9 @ 75
Wool—Domestic, 100 lb.	52 @ 72	45 @ 60
Domestic, pulled, 50 lb.	40 @ 60	30 @ 52
California, clip, 50 lb.	20 @ 40	18 @ 34
TALLOW, 50 lb.	8½ @ 9	8½ @ 9
OIL—Coke, 50 lb.	35 50 @ 50	39 50 @ 41 00
PORK—M c s s, 50 barrel.	15 50 @ 16 00	16 50 @ 17 37½
Prime, 50 barrel.	11 75 @ 12 25	12 75 @ 13 00
BEEF—Plain mess., 50 lb.	9 00 @ 11 00	9 00 @ 11 00
LARD, in tins & barrels, 50 lb.	7½ @ 8½	8½ @ 9
Butter—State, new 50 lb.	30 @ 48	35 @ 47
Western, 50 lb.	10 @ 38	30 @ 40
CHEESE—50 lb.	10 @ 17	9 @ 16½
BEANS—50 bushel.	2 00 @ 3 25	2 00 @ 3 60
PEAS—Canada, free, 50 lb.	1 20 @ 1 30	1 25 @ 1 35
Eggs—Fresh, per dozen	25 @ 28	19½ @ 21½
Poultry—Fowls.	9 @ 17	12 @ 24
Turkeys—50 lb.	12 @ 18	15 @ 24
Geese, 50 pair.	1 50 @ 3 00	2 00 @ 3 70
Ducks, 50 pair.	75 @ 1 25	1 06 @ 1 62½
TURNIPS—50 barrel	75 @ 1 50	75 @ 1 50
CABBAGES—50 100.	5 00 @ 15 00	8 00 @ 14 00
ONIONS—50 bbl.	5 50 @ 7 50	9 50 @ 10 00
BROOM-CORN—50 lb.	3 @ 4	3 @ 7½
APPLES—new, 50 barrel.	1 50 @ 3 25	1 00 @ 3 00
POTATOES—50 bbl.	1 50 @ 3 25	1 50 @ 3 62½
SWEET POTATOES—50 bbl.	3 25 @ 3 75	3 50 @ 4 00
CARROTS—50 bbl.	1 50 @ 2 00	3 00 @ 4 00
CELERY—50 doz.	1 50 @ 1 75	1 50 @ 1 75

New York Live-Stock Markets.

WEEK ENDING	Beef.	Cows.	Calves.	Sheep.	Swine.	Total.
March 17th.	6,696	129	1,014	21,116	39,614	68,533
March 24th.	6,908	151	1,135	10,937	33,962	53,073
March 31st.	8,687	137	1,250	13,701	30,840	54,638
April 7th.	6,417	110	1,350	14,738	30,238	61,895
Total for 4 Weeks.	28,708	517	4,769	60,459	143,614	238,177
do. for prev. 4 Weeks.	28,795	395	2,783	76,141	133,071	241,120
Average per Week.						
do. do. last Month.	7,199	99	684	19,630	33,248	—
do. do. prev. Month.	7,311	109	679	16,243	31,775	—

Beef Cattle.—The supply of cattle during the past has run very nearly the same as the previous month. The quality has been common to medium flesh, with a sprinkling of good cattle. Texans are coming in less freely, but show better feeding. Prices slightly advanced during the 2d and 3d weeks, but the close averages same as the opening.

The prices of the past 4 weeks were:

	Range.	Large Sales.	Aver.
Mar. 17.	9½ @ 14½c.	11 @ 12½c.	11½c.
Mar. 24.	10 @ 14½c.	11½ @ 12½c.	11½c.
Mar. 31.	10½ @ 14½c.	11½ @ 12½c.	11½c.
April 7.	10 @ 14½c.	11 @ 12½c.	11½c.

Milk Cows.—The supply is greater than last month, and while choice cows have sold readily at the highest prices, poor have sold slowly. The rates are \$40 @ \$50 each for ordinary, \$65 @ \$75 for fair to good milkers, and choice \$80 @ \$85. **Calves.**—The receipts of both live and dressed veals have increased since last report. A considerable number of small, thin calves have been sent in, which sold for little more than the price of their skins; the senders running the risk of having them seized when slaughtered here. Quotations for live, 8c. @ 11c. 7 lb.; dressed, 7c. @ 10c. for poor to good, and 10c. @ 11c. good to choice. **Sheep.**—The receipts are not as large as the previous month, and prices have been well sustained with light transactions. One cause of lighter receipts is, the Western farmers are holding to clip, thus saving the wool, and reducing the freight per head, as they can get 50 more sheep into each car at same rate per car after clipping. Quotations. The general range is 7½c. @ 8½c. unshorn, and 6½c. @ 8½c. clipped. **Swine.**—The receipts of Western dressed during the past 4 weeks were 5,136; they have now ceased to arrive. Live hogs are arriving more freely with prices slightly advanced above last month. Quotations, live 6c. @ 6½c. city-slaughtered 7c. @ 7½c. for heavy to medium, and 7½c. @ 7½c. for light weights and pigs.

DON'T FORGET THE PREMIUMS! 2 Months More.

Two Months Yet Remain—May and June—during which any person who wishes to obtain one or more of the useful and valuable articles offered in our Premium List (of which a copy will be sent free to any applicant, see page 198) can easily get them. This has already been done by more than 14,000 persons, who during years past have tried with success the raising of Clubs of Subscribers for our papers, and availed themselves of the liberal offers of Premiums made by the Publishers.

We invite all our Subscribers to take hold of this work and secure a Premium while the offer is open. Specimen copies of both papers will be sent to any wishing to show them for this purpose.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.** Post-Office Money Orders, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

Delivery of Chromos.—We have delivered all the Chromos due to subscribers to the *American Agriculturist* up to January 31st, 1873. We shall continue the delivery with the utmost dispatch.

No Anonymous Letters.—Those who write us asking information or making statements of experience can not expect to have their letters noticed if they omit their proper names. No one would think of writing to a lawyer, banker, or merchant, without giving his name, and we do not see why it should be considered proper to address editors anonymously. If a person asks information he can not want it very earnestly if he does not care to sign his request, and if one gives information it is worthless unless it has the writer's signature. Take notice—we do not publish names where a desire is indicated that we should not do so. Sign the article what you please, but give the real name besides. We shall hereafter notice no anonymous letters.

Do Snakes Swallow their Young?

At the request of a professor of natural history in one of our colleges, we asked in February last for evidence upon this disputed point. In response, we have received 69 letters, varying in length from a few lines to several pages, all giving the testimony of the writers that they have witnessed the act of snakes swallowing their young. Some of the variety stores have a sign reading, "If you don't see what you want, ask for it," and we have found the best way to get information upon any obscure point is to "ask for it." The *Agriculturist* reaches such a great variety of readers, that we rarely ask for experience upon any point that we do not receive a reply from some quarter. Of these letters, 40 had distinct post-marks, and of 29 the post-marks were perfectly illegible. Of the whole 69 there were five in which there was no clue to the address of the writer upon the inside or outside of the letter. Arranged by States, there were from Mass. 4, N. H. 2, Ct. 6, R. I. 1, N. Y. 10, N. J. 7, Pa. 6, Ohio 7, Ind. 1, Ill. 1, Mich. 2, Iowa 2, Minn. 2, Wis. 3, Kansas 2, Tenn. 1, Va. 1, W. Va. 1, S. C. 1, Ga. 1, Miss. 1, La. 2. As we have now all the replies we are likely to receive, we shall transfer them to the professor in whose behalf the request was made, thanking the writers for the interesting contributions they have made towards clearing up an obscure point in the history of our reptiles.

An Enraged Editor.—Some correspondent wrote about an ailing dog, and the letter was handed to one of our associates who is wise in such matters. The editor in question carefully read the account of the dog's case, carefully considered the whole matter, and then carefully wrote a long letter giving his view of the case and suggesting the proper treatment. The letter being at length finished, the whole affair occupying half an hour or more, he put it in an envelope and turned to find the address. The correspondent had not signed his letter! This editor is generally a very mild man, but we do not think it would have been safe for the correspondent to have met him just then. The man with the sick dog will know why he received no reply. Moral: always sign your letters.

A Contemporary's Opinion.—"The Watchman and Reflector" has the following, which we give as a specimen of the many commendatory notices we receive from our friends of the press: A few evenings ago we read through consecutively the January, February, and March numbers of the *American Agriculturist*, and learned enough of farm-work, household-work, valuable recipes, and interesting facts and suggestions, to last us the remainder of our natural life, if we could put it into practice! It is one of the very best family papers published: sprightly, entertaining, instructive, and practical, and edited with great tact.

"Put it in the April Number." writes "A Subscriber," who dated his letter of inquiry March 27th, a day upon which many of the readers had the April No. in hand, and one upon which it was going to all of them outside of the city. "A Subscriber" should remember that anything that reaches us on the 12th of March (not to mention the 27th), stands but a shadow of a chance of being replied to before May. If subscriber had signed his name he would probably have had a reply by mail; but if people do not care to put their own names to what they write the matter can not be of much importance to them.

No Name.—When a correspondent writes to ask what we think of Messrs. Boans & Co.'s or any other superphosphate, and if it is a good fertilizer for early cabbages, etc., he should remember to put his name to his letter, and inclose a stamped envelope, as we generally reply to such inquiries by mail.

National Columbarian Society.—Agreeably to previous public advertisement, a meeting was held on Wednesday the 9th inst., at 14 Murray St., for the purpose of forming a National Pigeon Association, at which Mr. Wm. Simpson, Jr., of West Farms, N. Y., was chosen permanent President; Mr. A. B. Estes, Corresponding Secretary; with Vice-Presidents and other officers in many of the States of the Union. Any information pertaining to the objects and interests of the Society may be obtained by addressing the Secretary, P. O. Box 316, New York City.

Red-Top for Hay.—"F. R. W." St. Pauls. Red-top is not the best grass for hay, except in moist, undrained soils liable to be occasionally overflowed. Then, if cut early, it has a thick bottom, and makes a heavy crop of second-rate hay. Timothy on moist, drained soils is far preferable, or on uplands of fair character. If red-top is chosen, there should be about two bushels, or 25 pounds, sown per acre.

SUNDRY HUMBUGS.—The temptation is sometimes strong to refer our readers to any number for the past few months for "Humbug" intelligence; but this would hardly be right, as these swindling chaps are smart enough to know that if they keep at one thing long they will be found out; so they assume new changes frequently, just as certain birds change their plumage with the season.

COLLECTING NAMES.

The success of a majority of the swindles is due to personal and confidential appeals by letter. A person, not familiar with engraving and printing matters, receives by mail what appears to him like an autograph letter; and if he be a simple-hearted and withal rather vain person, he is so much flattered at being taken into the confidence of one who will show him how to make money, that he fails to see that the letter is a lithographic reproduction, and that thousands just like his have gone to thousands of people all over the country. It is too much for him. "The people think him a simple kind of chap, but here is a merchant in the great city of New York who found out that he is somebody. He'll show them a thing or two"—and bites at the bait. We know the rest, for it is told in these frequent letters of complaint. In February last we showed the various methods resorted to by swindlers to procure names. We give here a case illustrating one method in which many names are obtained. The following letter was sent to a highly respectable florist's establishment in Maryland:

"I am about issuing a new pamphlet, for which I wish a large number of addresses of persons in different sections of the country. I would like to buy your original letters received in answer to your advertisements. I will pay you \$15 per M., and guarantee to return them after copying the addresses. Please send at once what you have on hand by express, C. O. D., \$15 per thousand, and oblige, yours respectfully, etc."

An offer like this made to a thoughtless or an avaricious man, or falling into the hands of a dishonest clerk, is quite as likely to be accepted as to be refused. The address of this letter was Amity street, New York, in just that part of the street where dealers in the queer, and other swindlers, abound.

COMPLAINTS OF PROBABLE SWINDLERS.

We have frequent letters which state that the writers have ordered such and such things from persons who have advertised, and as they have received no returns ask us to denounce the advertisers as swindlers and humbugs. Sometimes a person is complained of in the strongest terms, and the complainant does not sign his letter! If we were to act upon these unsubstantiated statements of grievances we might injure an honest person—as we have too much experience of the uncertainty of mails to allow us to put down one as dishonest because an expected reply does not come from him. Before a person can have the distinction of a place in this column, we must be ourselves thoroughly convinced that he is a humbug, and must have such evidence as will convince a jury that we were fairly warranted in exposing him as such. We do not give time and money to this humbug business for the amusement of ourselves or our readers, but solely to save unsuspecting persons from the hands of sharpers. We have complaints which make it necessary to advise caution in dealing with certain \$5 sewing-machines. A person in Virginia has advertised one of these concerns as a swindle, and we have complaints that money has been sent and no machine received. There are small machines at the place advertised, but there seem to be two agencies for the same machine at one place, and agricultural implements "and all articles needed for farm work" are offered in the same circular with the sewing-machines. . . . Serious complaint is made of a dealer in needle-books and other fancy articles at Paterson, N. J. . . . Inquiries come from Oregon about a Philadelphia pen concern, who have received money and send neither pens nor reply. We can not understand how a person in Oregon or elsewhere can send \$10 to an unknown party in Philadelphia or elsewhere for pens or anything else.

BOGUS COMMISSION MERCHANTS.

A printed circular in the form of a regular prices current is sent us from Danbury, Ct., with the statement that it has been widely circulated in Vermont, and that by reason of it large amounts of butter, maple sugar, and other produce have been sent to Danbury. Upon the arrival of the produce at Danbury, letters were received directing it to be forwarded to New York and elsewhere. The Danbury people saw the swindle, and held on to a large share of the goods, and kept it until the shippers could be heard from.

USELESS INQUIRIES.

It is supposed that every reader of the *Agriculturist* has at least the numbers of the present year. If those who make inquiries about this or that scheme will look over these few back numbers they would see that their

questions are in many cases already answered. We have said all that is needful about \$4 watches, doubtful tea enterprises, distribution of watches and jewelry by ticket, and many other worn-out games. . . . Here is one who inquires if so and so are "the only agents of the Royal Havana Lottery or not." We do not advertise this kind of thing.

THE TEA, COFFEE, AND SPICE DODGE.

W. T. Mason & Co. have been sending out circulars offering great inducements in the way of tea and coffee bargains. We have been convinced that the concern was bogus, but had no positive proof of it. We have sent several times to their place of business, but could find no one in, and the neighbors seemed to know but little about them. A recent issue of the "American Grocer" says, "The firm of Wm. T. Mason & Co. belongs to that species of black-legs known as 'Sawdust Swindlers,' as the samples they send are nothing but a box of that article." It seems that they had an office over a large, respectable wholesale grocery store, and called for their letters, which were received in a box, twice a day. The concern has been broken up.

IN THE MEDICAL LINE.

We have some few new names, but they sing the same old tune—"take our stuff or die." A person in Indiana sends us several of the worst kind of quack advertisements, cut from papers, and says: "What do you know about the enclosed advertisements? Will look for answer in *American Agriculturist*." We think that those who published the advertisements are scoundrels, and those who will be taken in by them are fools, but we don't "know" anything about it. . . . The "National Surgical Institute" at Indianapolis sends out a small circular upon which are pictured deformities more repulsive, if possible, than are shown upon the large sheet. . . . A citizen of Rahway, N. J., is in trouble. He engaged in the sale of a quack medicine, but found that the people there read the *Agriculturist*, and would not buy. He thinks we have damaged his sales to the amount of one hundred dollars, and would like to have us make good his loss. It consoles us when we are reminded of this unfortunate individual's loss to think of what the people of Rahway have gained. . . . One reading the circular of "Seven Barks" could feel very sure that he had found a cure-all, did not the circular of "Mountain Herb Syrup" profess to cure quite as much. The discovery of each is equally wonderful, but the circular of the last-named is a little the more pious. These things come up, a new crop every year, flourish for a short time, and die away, and we suppose will do so as long as there are weak-minded people to try them. Almost anything put up in a bottle with a showy label will sell, provided the claims as to its curative qualities are made strong enough to act upon the hopes and fears of people who think they are sick. . . . The "Journal of Applied Chemistry" translates from "Jacobsen's Industrial Journal," published at Berlin, the following:

"FIVE-MINUTE FRAGRANT PAIN EXTRACTOR."

"This preparation, which is warranted to cure every pain in five minutes, is manufactured by Prof. Dr. Walter Scott, New York Medical University, No. 8 University place, New York City, and sold for \$1. The wrapper on the bottle contains the vignette of a man's head with the hands clasping his temples. A list of 22 diseases is given, which this medicine will cure. The label on the bottle gives directions for use, viz.: 1. Rubbing the remedy into the afflicted part with the bare hand. 2. Moistening a cloth or flannel with it, and binding it on the part. 3. Rubbing it on with a brush until all pain disappears.

"In a wide, four-sided bottle is about 200 grams of a clear, colorless liquid, which smells of ether, and consists of

Ether.....	6.0 grams.
Glycerine.....	21.0 grams.
Common salt.....	3.4 grams.
Distilled water.....	170.0 grams.

"Any apothecary in Germany would put up this mixture for one-sixth of that price. It is plain that this Professor and Doctor Scott belong to the money-makers. In North America, where there is no official medical inspector, the price of \$1 is considered very reasonable. That a University Professor should prolong his existence in this manner seems to us here in Germany a high degree of moral turpitude. Not so in North America, where people take different views in this respect."

It never entered into the mind of the German editor that one man or a few men could assume the name of a university, and publish their quackery without being stopped by law. We have often stated there was not in any proper or legal sense any such institution as this "University."

A LOAN SWINDLE.

J. J. Wells, Greenville, Pa., advertises to loan \$200,000 on good security. Correspondents must send description

of security, and "\$2 to pay for examining securities." One of our correspondents has investigated the matter, and finds that Wells does not advertise in the paper in his own town, where he could loan more than the named amount on real estate security at ten per cent. The \$2 for examining explains the whole thing. . . . Chaps who are known as

DEALERS IN THE QUEEN

seem to have found some other occupation. The only new names we have are C. E. Ruh and J. E. Naylor, who modestly give no address, but hail from New York in general. Theodore G. Chambers may be found at 609 Broadway, as may another who does not give his name, but says James Watson is on the door. In language more forcible than elegant he cautions his customers against swindlers on the street, and says, "You must bring every dollar you can raise," and adds, "I will guarantee that you will be a rich man in 30 days." And some will be fools enough to do it.

Alsike Clover.—"G. E. S.," Lima Center, Wis. The seed of alsike clover must be gathered from the first crop. It will not seed again the same season, as red clover will.

Cribbing.—"H. E. L.," East St. Johnsbury, Vt. Cribbing is a vice, and not an unsoundness. The colt of a cribbing mare may not necessarily be a cribber. The vice often springs from indigestion, and this being often a hereditary complaint, such a colt should be carefully guarded against acquiring the vice.

Harrowing.—"W. M. H.," Watertown, Tenn. Two horses are abundantly able to draw a forty-tooth harrow covering thirty square feet of ground, made with two wings, hinged together in the center, of oak-timber bars 3 x 4 inches square, with $\frac{1}{2}$ -inch teeth, kept sharp, and placed so as to draw cornerwise to the earth. A team traveling two miles an hour for ten hours, and passing twice over the ground with a six-foot harrow—that is, taking three feet of fresh ground at each bout, and going over the other three feet the second time—will harrow about seven acres in a day. A team, however, should move at least three miles an hour when harrowing, and should take occasional rests.

Milk-Pails.—"L. W.," Crisfield, Md. Wooden milk-pails should never be used; it is next to impossible to keep them sweet. Tin pails are easily kept clean, but soon wear out. The best milk-pail we know of is the Iron-clad Milk-pail, which is easily cleaned, and is strong and durable.

120 Bushels of Corn per Acre.—"J. W. N.," Galloway, Arkansas. The majority of the reports about such crops of corn as 100 or 120 bushels per acre are only believed by credulous persons. Nevertheless, such crops are raised occasionally, but only by the best farmers. They never grow by chance. How a crop of over 100 bushels of shelled corn (nothing allowed for shrinkage, however) was raised last season by one of the best farmers in the country was told in the *Agriculturist* for April.

Swivel-Plows.—"A. C. G.," St. Louis, Mo. Holbrook's Swivel-plow is, we believe, undergoing improvements, and for that reason is not advertised. When the manufacturers are prepared to supply the demand for this much-needed implement, they will probably take means to inform the public.

Culture of Cow-Peas.—"A Subscriber," Knoxville, Tenn., sends us his experience in raising cow-peas. He has raised them for several seasons, but has not been able to make them a really paying crop when sown by themselves. The chief difficulty met with is in harvesting them. He has sown them in drills along with the corn crop, in the furrow made by the shovel-plow the last time of cultivating the corn, in June or early in July. The furrow is made near the corn, a d five or six peas are dropped between the corn-hills. When the "middles" are split by the shovel-plow, the peas are covered, and that is the end of the planting. The corn is cut late in August, and then the peas make a rapid growth until early in October. They are pulled before frost, stacked in small cocks with the roots outwards, and left to cure for two or three weeks. They stand any amount of rain without injury. For a soiling crop, or for plowing under, they are equally valuable. They stand drouth remarkably well, by reason of their habit of deep rooting; and this peculiarity gives them a power of deriving a large portion of their nutriment from the sub-soil, and of growing luxuriantly on soil that has been badly worn and shallow plowed; and this tends to make them very valuable for plowing under to improve the surface soil. The difficulty of mowing and drying them

when the crop is rank and heavy is a serious drawback, and information as to the practicability of using a mowing-machine to cut them when sown broadcast is requested. Possibly, some of our Southern readers who have tried this method will communicate it for the benefit of "A Subscriber" and others interested. We have mowed peas (common peas, not cow-peas, which, by the way, are not peas, but a species of bean) with the mower without any trouble, by lowering the points of the cutting-bar, as in mowing lodged clover. Peas generally are mowed with the scythe by making a straight drawing cut towards the mower, and thus gathering them into bunches, in which they are left to dry. We can not see why the cow-pea could not be harvested in either of these manners.

Standard Bushel.—"Subscriber," Howard Co., Md., asks the following questions: "(1st) What is the standard bushel of mangels? (2d) How many bushels of mangels is a fair crop? (3d) Will land that has been ten years in clover produce a fair crop of late cabbage without other manure than the sod? (4th) Will refuse salt composted with stable manure and plaster make a good manure for cabbage, egg-plants, and other garden crops?—(1st) The heaped bushel of 2,750 cubic inches is the customary bushel. There is no legal standard for these roots. (2d) 600 to 800 bushels. (3d) No. (4th) If the salt and plaster are used in small quantities and the stable manure used abundantly, yes; if otherwise, no.

Garget.—"H. E. L." A cow that has had garget two or three times will probably have a swollen udder every time she calves. Such a cow should be watched very narrowly, be fed very sparingly before she calves, and if her bag becomes filled up she should be milked a week previously if necessary. Such cows should go to the butcher.

Seeding Grass in the Spring.—"S. S.," Shelburne Falls, Mass. Grass and clover may be seeded in the spring, if sown early, without any protecting crop. The ground should be well prepared, made very fine, and the seed either brushed in with a bush-harrow or covered by rolling. A dressing of stimulating fertilizer, as guano or wood-ashes, would be useful. As it is now too late for such a seeding, a crop of late oats cut for fodder might be sown with the grass seeds. We have succeeded in getting a good stand of grass and clover with buckwheat sown on the 25th of June.

Engine for Thrashing-Machine.—"S. P. A.," Newark, N. J. To run a thrashing-machine a four-horse engine would be advisable, as it is more economical to have power to spare than to run up to the full capacity of an engine. Any force-pump would answer to raise water 150 feet to a tank; the American Submerged Pump is as good a one as we know of.

Baling Stable Manure.—The waste of fertilizing matter produced in large cities is enormous; and the cost of carriage on that portion which is utilized is so great as to largely restrict its use. A process of drying, compressing, and packing the stable manure made in cities has been invented and patented. If it should turn out to be feasible, it will undoubtedly have the effect of cheapening the cost of manure to farmers at a distance from cities, and to the utilizing of a much larger proportion, if not the whole of it.

Hay without Barn-yard Manure.—"A. S. K.," Ct. Hay may be grown without stable manure if other fertilizers are judiciously used. Plaster, wood-ashes, muck composted with lime and a small portion of salt, and about 250 to 300 pounds per acre of some of the ammoniacal manures, of which the best probably is fish guano or dried blood-and-flesh manure, are all valuable for grass crops. The meadow should not be pastured in the fall, and if it can be irrigated from a well or spring success will be certain.

Cows for Draft Purposes.—"L. L.," Prince William Co., Va., writes that as an old English farmer he begs to correct the statement in the *Agriculturist* that cows are used for draft purposes in England. "L. L." probably refers to the statement in "Ogden Farm Papers" of February, that "many a farmer in Europe does all his plowing with his cows." This is true of continental Europe, which is what was meant. England was not referred to.

Crude Petroleum.—"J. C. W.," Harford Co., Md. Crude petroleum is a very excellent application for wooden out-buildings or a picket-fence. The first coat will be rapidly absorbed, and a second one may then be given. Its preservative effect is very considerable. If desired, a coating of some of the chemical paints may be put on over the petroleum.

Fence Wire.—"W. A.," Prince William Co., Va., asks what is the cost and weight of fence wire and where it can be procured.—No. 9 wire, the usual size for fencing, is worth about 10 to 12 cents a pound, and one rod in length weighs one pound. Any agricultural implement dealer in New York, Baltimore, or Richmond can procure it, or those who advertise in our columns might be relied upon to furnish it.

Bog Spavin.—"A Subscriber," Sewickley, Pa., has a horse which has a large swelling on the inner part of each hind knee or hock-joint, and small lumps on the vein on each side of the hock-joints. He asks, What is the matter—is it a spavin, and what shall I do?—It is a spavin, known as bog or blood spavin, caused by over-work or over-driving or a sprain. It consists of an excessive secretion of the fluid by which the joint is lubricated, and if it will not yield to the application of iodine ointment, rubbed on the part morning and night, it should be treated by a surgeon. Sometimes the swelling is punctured and tightly bandaged, but this is dangerous in the hands of any but a surgeon, as if improperly performed it might permanently injure the joint. There is no attendant lameness, and perseverance with the iodine ointment may possibly bring about a cure.

Indian Tan.—"J. B. W.," Licking Co., Ohio, asks for the Indian process of tanning buffalo robes. This was told in the *Agriculturist* of September, 1872, which may be had for 15 cents.

Arithmetical.—"H. B. G.," Dayton, Kansas, asks us if the following problem can be solved by allegation alternate, viz.: A man buys 100 head of stock for \$100; he buys cows at \$10, hogs at \$1, and sheep at 50 cents—how many of each kind did he buy?—It can be solved by allegation alternate, by which rule the ratios of the quantities required are 1, 1, and 22, but as 100 is not divisible by the sum of these numbers without a fraction, the result is absurd as regards cattle; it would be $4\frac{1}{6}$ cows, $4\frac{1}{6}$ pigs, and $91\frac{1}{6}$ sheep. If, however, instead of 100, 600 is taken, then the answer would be a rational one, viz.: 25 cows, 25 hogs, and 550 sheep.

Boring.—"W. A." asks which is the simplest method of boring or drilling a considerable depth through earth or rock.—It is done by steel-pointed drills raised by machinery, driven by steam or hand, and permitted to fall by their own weight. Experience and skill are required in this business, without which it would be impossible to succeed. In the neighborhood of Charleston, W. Va., or Burning Springs, Wirt Co., W. Va., it would be easy to secure men used to bore salt and oil wells.

Green Manuring.—"W. A." asks what are the comparative values of peas, buckwheat, and clover as crops for plowing under.—The chief advantage of buckwheat is its rapid growth, which enables two crops to be plowed under in one season. A crop of peas furnishes more nitrogen to the soil than buckwheat, but its bulk is not greater. Clover not only furnishes a great bulk of leaves and stalks but a large quantity of roots in addition, which on decaying leave the soil porous and open, and in the best mechanical condition; besides it will yield two crops of fodder or hay, and then afterwards, in the second or third year, furnishes a crop to plow in. On the whole, clover is much the best manurial crop.

Feeding a Yearling Colt.—"O. H. C.," Saratoga Springs, N. Y., being a novice, is troubled lest he is overfeeding a yearling colt, which gets 4 quarts of oats and nearly all the hay it will eat. The colt is very large and is growing finely.—There is no danger in this feed if the colt is allowed plenty of exercise, and is given salt regularly and the hay and grain are sound and good. There is more harm done by stinting colts in their feed than by overfeeding, in most cases.

Unhealed Wound.—"E. A. B.," Newark, N. J., asks how he should treat a bare horny spot on the lower part of a horse's front leg, caused by a bruise last fall, but which does not heal up satisfactorily.—There is no doubt something wrong at the bottom of the wound, that prevents healing. We would apply warm poultices of linseed meal until the old wound was reopened and a healthy suppuration established, after which the wound should be treated with compound tincture of benzoin until properly healed. If the sore becomes indolent, moderate caustics, as powdered blue-stone, would be useful, until it presents healthy granulations.

Plan for House.—"S. E. F.," Indianapolis, wishes to build a house for a home, to cost \$15,000, and asks for a good plan.—In spending that amount of money it would be a proper and profitable economy to employ a good architect to draw the plans and specifications, and see that the building was erected and completed in ac-

cordance therewith. A competent architect could easily save more than his fee of 5 per cent on the cost, in supervising the contracts and the building.

Poultry Profits.—"H. E. Lee, Gaillard, Ct., sends the following account current with 36 Light Brahma hens for the year 1872, as follows:

Dr.	To $84\frac{1}{2}$ bus. corn and oats.....	\$65.06
	40 lbs. butcher's scrap.....	1.20
	$\frac{1}{2}$ lb. r. d. pepper.....	.15
	28 dozen eggs set, @ $27\frac{1}{2}$ ¢.....	7.70
		\$74.20
Cr.	By 383 $\frac{3}{12}$ dozen eggs sold.....	\$106.60
	chickens sold.....	29.59
	value of manure.....	10.00
		\$146.28

Leaving a profit of \$72.08, or two dollars per hen.

Peruvian Guano.—"Ebenezer," Lawrence, Mass., purchased last season some Peruvian guano, in bags stamped as follows: "Warranted No. 1 Peruvian Guano; imported into the United States by the Agents for the Consignees of the Peruvian Government. Guanape." He asks, Is this the best Peruvian guano? He thought it was not. Where can he get the pure article?—Pure Peruvian guano, as we used to know it some years ago, is a thing of the past. The "Peruvian guano" from the Guanape Islands is of very variable quality, and at the best is deficient in ammonia. The warrantee, of course, is no guarantee of quality. It is well known and understood that there is no standard for that any longer, and purchasers are obliged to run the risk of getting a good or poor quality.

Bureau of Statistics—Notice.—The Chief of the United States Bureau of Statistics announces that the German and French editions of his Report on Immigration are now ready, and will be forwarded at an early day to Hamburg, Bremen, Antwerp, Havre, and Trieste, for distribution in Germany, Austria, France, Switzerland, and Belgium. A copy will be sent to any address in either of the above countries, on the receipt of twelve (12) cents, in postage-stamps, for the German, or eighteen (18) cents for the French edition. Address, Bureau of Statistics, Washington, D. C.

Plaster on Spring Crops.—"C. W. H.," "A New Reader," and others are informed in reply to inquiries, that plaster is a valuable application to almost all spring crops. Grass, clover, corn, spring wheat, and oats are all benefited by it. It is often the cheapest fertilizer that can be purchased, as 100 pounds per acre at a cost of 50 cents has often doubled the yield of grass or clover. It should be spread evenly on the crop, after it has started to grow, on a quiet morning before the dew has dried off.

Concrete Walls.—"Inquirer" asks if concrete made of sand 2 parts, gravel 6 parts, lime 1 part, will stand moisture or fire? Can it be molded into blocks and walls built of these blocks? Is the lime spoken of in this relation in Atwood's "Country Houses" common lime or hydraulic lime?—Concrete made as above will not stand fire; it will do for cellar walls and chimneys, but not for fire-places. It can not be used to mold blocks; that process requires hydraulic cement, which is much stronger than ordinary lime, and sets more rapidly: Atwood's formula as above refers to common lime.

Feed Roots after Milking.—The statement often made in these columns that the disagreeable flavor that comes from feeding turnips and other roots to dairy cattle may be avoided by giving such food only immediately after milking, receives constant and frequent confirmation from our correspondents. In one instance, we hear of three pecks of turnips per day being fed without the least trace of the flavor remaining in the system at milking time, and this not only for a few weeks, but at the end of a whole winter's operations.

Russian Crabs.—"D. M." There are several Russian or Siberian Crab-apples.

The Epizootic.—"J. T. Lee, Douglas Co., Ill.—Horses or cattle may take this complaint twice a year, spring and fall, if exposed to cold or damp. It is occasioned by certain conditions of the atmosphere and the weather, and if one horse takes it, all are subject to it, and yet some may escape. It is not considered infectious nor contagious.

A Good Jersey Cow.—At an agricultural exhibition at Starkville, Miss., Mr. W. B. Montgomery's cow was brought out for trial as to her milking capacity in the presence of the judges and of the public.

which had expressed itself as very skeptical as to her value. She gave (at her regular interval) over eleven quarts of milk of the richest "Aldernay" quality. This would be very large in our best Jersey herd at the North, and is much more surprising in Mississippi, where until recently it was supposed that clover and the grasses could not be cultivated, and where six quarts a day has probably been a large average for what was called a good cow.

Potash as a Fertilizer.—"R. H. F." Commercial potash is now quoted in the wholesale market at \$8.50 per barrel, equal to about \$1.70 per 100 pounds. It has been used in composts by dissolving it in water and scattering the solution over the heap, which is probably the safest way to use it.

Powder and Caterpillars.—"F. J. R." writes that he has seen Tent-Caterpillars successfully disposed of by shooting into their nests with small charges of powder. He suggests that for tall trees the gun might be attached to a pole and the trigger pulled by means of a string.—The best way to treat Tent-Caterpillars is to nip them in the bud—or egg.

Encouraging from Texas.—"J. C. R.," Atascosa Co., Texas, writes in a private note to the editor: "Texas is the best country I know for the poor working man. I have now about seventy head of gentle hogs, eight horses, a four-horse wagon, two plows, a horse-hoe cultivator, a mowing machine. Sixty acres under good fence. Will cultivate forty acres this year. Two years ago last December I had nothing of the articles above enumerated, and did not know where to get a cent of cash. I have made all in the last two years. It's true, I have good friends. I intend to plant corn on the 5th of February; cotton the 10th of March. The weather is pleasant, the thermometer about 70° in the shade."

Materials for Mortar.—"S. R. E.," Beaver Co., Pa. The proper proportion for mortar for plastering is one cubic yard or 18 heaped bushels of stone-lime, double that quantity of sand, and three bushels of hair. This quantity will cover 70 ($\frac{3}{4}$ inch) yards on lath.

How to Kill Gophers.—"J. H. B.," Woodford Co., Ill., kills gophers by opening a new rim and setting a milk-trap therein, covering the hole quite closely with a piece of board, and then making an opening two feet from the trap to let in the light. The gopher comes very soon to close the hole, when, if the trap is set lightly, he is certain to be caught. After a few have been trapped, the rest abandon the location.

Animal Manure.—"W. Van G.," Hudson, N. Y. Scrap-cake from lard-renderers is a valuable manure for the nitrogen it contains. To get the best effect, it should be reduced to powder, or made as fine as possible, and applied near the seed, so that the young plant shall get an early, vigorous growth. By composting with earth it is reduced to a condition of fineness, but much of the nitrogen is said to disappear. The best plan is therefore to apply it directly.

Read the Advertisements.—There are inquiries coming to us daily for information which might be found in the advertising columns. It ought not to be supposed by any means that the contents of those columns are of no value to any one of our readers; on the contrary, every one who desires to be posted in his business should know where the articles he requires are to be procured, and should have this information always at hand. This can be done by reading those columns in which business people announce what they have to dispose of. Before any of our readers take the trouble to write us inquiring about any article, they should carefully look over the pages of advertisements, and in many cases they will discover where and how their wants may be supplied.

Artesian Wells.—"W. Van G.," N. Y. There is no certainty of procuring water by an Artesian well without an experiment. The fact of a boring being made below the level of the bottom of a river or lake is no surety that water will be procured, because there must be a bed of porous rock or gravel existing through which the water percolates; this can only be ascertained by trial or geological knowledge.

Weak Eyes in a Calf.—"C. B. K.," Ludlow, Mass. Animals are often troubled with a watery discharge from the eyes, consequent on cold or exposure in damp or filthy stables. Very often a little burnt alum, blown into the eye through a quill causes a counter-irritation which relieves the inflammation, or a rag wetted with a weak solution of sulphate of zinc hung over the eye will relieve it. Keep the calf in the dark.

Lime and Manure.—"H. N. C.," Somerville, N. J. When lime is spread on a field just previously manured no harm is done. The effect is to cause the stable manure to be more rapidly decomposed, and consequently to act more vigorously on the crop and to be more rapidly exhausted.

Wanted an Estimate.—"A Subscriber" asks how much he should pay for the use of seven cows for one year, he finding the feed and having all the milk.—That depends much on the kind of cows. If they are such as will give an average of 10 quarts of milk a day during the season of nine months, the owner of the cow should be entitled to one half of the profit over the cost of feed. The feed and care of a cow for a year should be worth \$50; the milk at 3 cents a quart would be worth \$81; half the profit would be \$15.50—a fair allowance for each party.

Tobacco Culture as to its Morality.—"L. B. Y.," Meriden, Ct. There can not be the slightest objection to the culture of tobacco in a moral point of view, nor in an agricultural way if the grower uses sufficient caution to prevent loss of fertility to his soil. Morally the growth of tobacco is in the same category as that of tea, coffee, barley for malt, or hops, which are not necessities of life. Agriculturally its culture is sound, when on the whole, the grower is permanently benefited; if he grows a crop or crops at a less profit during a course of years than by other crops it is not a good business; and farmers ought to make close and prospective calculations before they are tempted by seeming present profits to give their land up to it.

Taylor's Cattle Food.—We do not advertise preparations of this kind without being informed of their composition, and the fact that it appeared in our columns is evidence that we thought well of it. Since it was introduced, we have had considerable experience with it, especially in the case of one animal which appeared in a hopeless condition. Some of our best breeders think it useful in preventing abortion, and as it improves the tone of the animal's system this may be to a certain extent true. The food consists of tonics and stomachics ground up with corn; and is in a form that is handy to use, as well as palatable to the animal.

American Rubber Paint.—Of late years several substitutes have been proposed for the ordinary oil paint. These have the advantage, among others, that they are mixed and ready for use. A given quantity—a gallon, for instance—will cover a certain number of square yards, and one has only to measure the surface to be painted, order the proper amount of paint, and put it on at his leisure. One of the successful paints of this kind is made by the American Paint Co., which has been used with satisfaction by some of our associates, and which is probably as good as any similar article now in the market.

Diluted Sulphuric Acid.—"G. P. D.," Delaware Co., Pa. Water charged with sulphuric acid would make a valuable wash for stables if there were any way of saving the liquid manure. Applied to a manure pile it would fix the ammonia which became disengaged from the fermenting mass, and produce a non-volatile salt of ammonia.

Management of Colts.—"F. F.," Blue Hill. Colts sometimes have a hereditary predisposition to founder, and a slight overfeeding with corn-meal or inattention to the general health may induce inflammatory action in the feet, which is known as founder. In such cases the stable floor should be spread with sawdust six inches in depth, kept moist where the fore feet are placed with cold water. Soft, cooling food, as bran-mashes, and plenty of cold water for drink should be given, and cold water freely applied to the feet. The colt should be encouraged to lie down by having a good bed supplied, and not be forced to take exercise which is disagreeable to him. If a moist pasture can be procured, a run at grass would be beneficial. No bleeding needed.

Sowed Corn for Fodder.—"A. P.," Charlotte, who says he has never seen any directions for harvesting fodder corn in the *Agriculturist*, is requested to look again; he will not only find ample and repeated directions for this, but doubtless for many other useful things which he has missed.

Homœopathic Veterinary Practice is a new work published by Boerick & Tafel, of New York and Philadelphia, which describes the treatment under this system of diseases of horses, and all other kinds of domesticated animals. For those who desire to follow this treatment, or for those who desire to

learn the proper management and care of animals in health, this book will be found valuable. Price, \$5.

Ashes from Spent Tan-Bark.—"J. O. M.," Susquehanna Co., Pa. The ashes from spent tan-bark are worth as much as the average of wood-ashes. If they are mixed with coal-ashes as they often are when burned beneath the boilers of a tannery, their value depends altogether on the proportions in which they are mixed. The refuse matter from a tannery consisting of scrapings and trimmings of hides and lime with some hair is worth \$2 a load, which is its usual price.

Potatoes—Early Peas.—"G.," Arvon, Ct. It will depend much upon the season whether "Early Rose" planted in the middle of July will mature a crop. If there is the usual midsummer drouth the vines will have a poor chance to grow—no vines no tubers. As to the best early pea, a good strain of Daniel O'Rourke is perhaps as reliable as any. This pea has any number of names, each dealer calling it his particular "Extra Early."

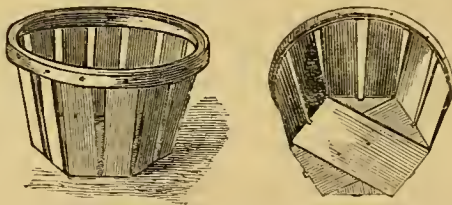
Proper Age for Breeding.—"C. C. McD.," Battle Creek, Mich. A mare at two years old is too young to breed. She should be four years old. A Jersey heifer may be allowed to breed after she is a year old, but generally heifers of other races should be at least two years old. Jersey cattle are more precocious in this respect than others, and yet it is a question if it would not be better not to breed even from these so early.

Chopped Oats and Corn.—"G. C. A.," Marion Co., Oregon. If it were not for the amount of husk, oats would be about equal to corn as feed, weight to weight; but nearly one half ($\frac{1}{2}$) of a bushel of oats is husk. In estimating the comparative value of chopped oat and corn this must be taken into account.

St. Vitus Dance.—A "New Subscriber," Washington, N. C., who probably is not aware that all letters should be signed with real name.—St. Vitus dance is a nervous disease which generally follows distemper in young dogs. It consists in a twitching, more or less violently, of the muscles of a limb, or sometimes of the whole body, and not infrequently the animal dies miserably. The dog when affected slightly generally recovers in time if his general health is kept up. The food should therefore be of the most nutritious and digestible—rice, oatmeal, or bread, boiled in beef-teen strained from all bone or meat, should be given in moderate quantities, and overfeeding and disturbing exercise avoided.

Manure-Eating Cows.—"J. F. H.," Oswego Co., N. Y. Almost all cows during the winter season will eat the litter from the horse stables if allowed to do so, even though they may be fed in the most abundant manner. We never knew any harm to result from the practice. Hogs and fowls in the same way will consume the droppings of cattle, and fowls those of hogs, and hogs those of fowls. It may be one of the economies of nature that nothing should be lost or useless. In parts of Sweden the dairy cows are regularly given the droppings of the horses as feed; but the practice is considered by some there as repulsive, as it is very naturally considered here.

The Paragon Basket.—Mr. J. R. Helfrich has shown us samples of a berry basket, which he and other commission men think very superior. The two engravings show how it is made. Three strips of



thin white-wood form the bottom and sides of the basket; the bottom hoop is dispensed with as well as the extra bottom piece. There is ample provision for ventilation, and the shape of the top is round, thus enabling the fruit to show at its best.

Variegated Leaves.—"S. W.," Fairhaven, Minn. The plant you send is not a Myrtle but a species of Spider-wort, *Tradescantia repens villosa*. We can not tell why the leaves of this and a hundred other plants are variegated—wish we could.

Galvanized Iron Pipe.—The term "Galvanized" is applied to iron covered with a coating of zinc. The zinc protects the iron from being acted upon by water, but the zinc itself is acted upon and dissolved.

The soluble salts of zinc are poisonous; hence galvanized iron pipe should not be used for conveying, nor galvanized tanks for storing water that is to be used for drinking and cooking.

Bermuda Coffee and Other Products.

"A. O." writes, March 31st. "I inclose a grain or two of Bermuda Coffee, which grows spontaneously in this parish at Walsingham and Paynter's Vale. I think coffee could be cultivated more extensively here. It grows quickly and bears well, and its quality is equal to that of Java. At any rate, it could be grown in sufficient quantity for our Island demand. Indigo also grows wild, and likewise other valuable plants, medicinal chiefly.

"Owing to the severity of this past winter, our three staple productions, onions, tomatoes, and potatoes, are late in the market, but during the month of April larger shipments will be made. The Trophy Tomato, if good, does well—is the finest fruit produced, and sells for highest price. Early Rose potatoes meet with ready sale for the home market, are first-class eating potatoes, are dug usually during February and March.

"Some of our people are prejudiced against the White Onion, and by legislative enactment endeavor to prevent the importation of White-Onion seed—and granted \$1000 to buy it up, and have destroyed what was on hand. Now this is an error, the white onion by some being preferred. This onion is what you term the yellow onion, not the silver skin variety.—The coffee sent was very fine in appearance, but it is a plant the quality of which is largely determined by soil and climate, and only actual experience can determine the practicability of its cultivation. We thank our correspondent for his good words in regard to the *Agriculturist*, and shall be glad to hear from him again.

Catalogues Received.

The following catalogues have been received since our last list:

Nurserymen.—W. C. Strong, Brighton, Mass.... J. W. Coburn & Co., East Chester, N. Y.... F. Trowbridge, New Haven, Ct., Fruit and Ornamental Trees.... J. A. Vaughn, Carver, Mass.... Geo. Pinney, Sturgeon Bay, Wis., Evergreen and Forest Trees.... F. K. Phoenix, Bloomington, Ill.

Florists.—Geo. W. Campbell, Delaware, Ohio.... L. B. Case, Richmond, Ind.... W. F. Porter, Warren, Ohio.... F. K. Phoenix, Bloomington, Ill.

Seeds.—Wm. Newton, Henrietta, N. Y.... L. D. Scot & Co., Huron, Ohio, Seed Potatoes.

Fowls.—N. B. Perkins, Salem, Mass.

Compton's Surprise Potato and other Novelties

"T. F.," Cheshire Co., N. H., writes that he thinks that instead of giving a notice of Compton's Surprise Potato, or allowing the advertisement of it to appear, we ought to class it among the humbugs. It is the business of an editor to let his readers know what is going on in the world. When he gives the authority for a statement that seems extraordinary, he gives his readers an opportunity to judge whether they will believe it or not. We go upon the principle that our readers are capable of judging for themselves in such matters. This Mr. Compton appears to be perfectly sincere in his statement, and his neighbors testify to his truthfulness. Which would T. F., as a long-time reader, have us do? Tell him that there is a potato for which such claims are made, giving him our authority for the statement, and distinctly stating that we know nothing of it of our own knowledge, or ignore it altogether? We do not see that any one is obliged to buy the potato unless they choose to risk their money in trying an experiment. Had we waited until we had tried the potato, we should be largely blamed, provided it turned out valuable, for keeping all knowledge away from our readers. As to showing it up as a humbug, we are very careful not to call a thing a humbug unless we feel able to convince a jury that it is so. We have a distinct recollection of being taken to task for publishing what we did in favor of the Early Rose potato when it was sold at a higher price. Yet the introduction of that has been worth uncounted millions to the country. It is our intention to keep our readers advised with regard to novelties in agriculture and horticulture. With regard to things that are untested by us, we give the source of our information, and leave the matter until we can record the results of our own experience.

Farmers and Railroads.

The enormous taxes levied on farmers by railroad companies in the shape of excessive freights, have at last become heavier than can be borne. The value of produce in the barns and granaries of farmers in the Western States has become so reduced that it is with difficulty the producers can support themselves. The low prices ruling during the present season have brought the matter to a crisis, and the farmers of Illinois have met in Convention to discuss the means for providing a substantial remedy. A State Farmers' Association has been formed which met on the 2d of April at Springfield; delegates from all parts of the State being present. A series of resolutions were presented and adopted, to the effect that railroads should be considered public highways, and as such should be brought under the control of the legislature, and made to serve the public convenience; that a general railroad law should be enacted by the legislature regulating the carriage of freights and passengers at reasonable rates, and that no unjust increase of the nominal capital of the railroad companies should be allowed; that railroad companies should be compelled to receive and forward all the freights on cars which may be offered to them either at stations on their roads, or at crossings made by other roads, with some other similar provisions. It was evident from the tone of the speeches made at the meeting that farmers are thoroughly aroused to the necessity of battling for their interests, if not for their positive existence, against the exorbitant demands of the railroad companies, and it is likely that this movement in Illinois will be seconded by a general one throughout the West. Of course, the railroad men deny a large share of the charges made against them. We hope that the matter may now be thoroughly ventilated, and the blame for the present depressed condition of agriculture fixed where it belongs; then such legal remedies should be applied as will meet the case. The few injudicious persons who threaten a resort to violence only injure their cause.

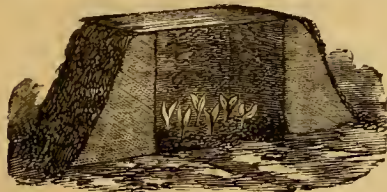
To Boys and Girls.

Children, there is trouble in our menagerie. The animals have not got to fighting, but what is about as bad, some are in the wrong cages. Never mind now whose fault it is—it is not mine—but just turn to pages 187 and 188 and make these corrections. The Common Seal is the lower left hand animal. The Sea-Elephant is in the upper right hand corner, and at the right of the Harp-Seal instead of the left as stated in the description. The Sea-Leopard is directly under the Sea-Elephant, and the Sea-Lion is at the upper left hand corner. What a bother these slippery fellows are! but if you will note these changes you will have them all right. Don't forget the Menagerie prizes. By the way, here is something for young gardeners that was crowded out of the regular pages, and as it will be of no use another month, we will take a little space from the old folks and put it here.

THE DOCTOR.

A Hint for Young Gardeners.

In the spring almost every boy and girl likes to make a garden. Some are content with making it and seeing the seeds come up, and then care nothing more about it, while others will stick to it all summer. Most young gardeners if asked what they would best like to grow will say "melons." A very good choice, we think, for melons are excellent, and none taste so good as those we



EARTH-HOUSE.

grow ourselves. Mr. J. L. Hyde, of Connecticut, who sent you a bird-house last year, sends now an account of what he calls a "dirt-house." He says:

"Any boy can make it that knows how to cover his feet with earth and make houses in this way. You may call it a hot-bed, forcing-frame, or anything else that you choose. The first thing to do is to dig a cellar about 10 x 12 inches across and six inches deep, and fill it with manure and earth well mixed. Now take a box without top or bottom, about 8 x 10 inches across and six inches high; place it over the cellar or foundation for the house, and bank the sides with damp earth; spat

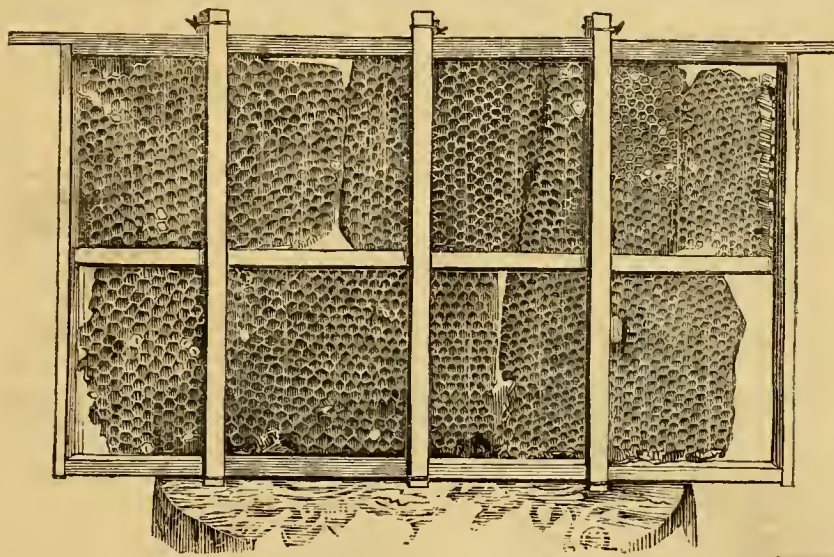
it down firm, and then carefully remove the box by lifting it out so as to leave the earth-walls standing, and make as many more as you choose in the same way.

"If you are careful, you will have the house all finished except the roof; but before you put that on you should plant some melon seeds, or any other seeds you choose. Now lay on a 10 x 12 glass for the roof—fix it on tight, so no air can get in. When the seeds make their appearance above ground, give them some air by removing a part of the south side of your house, or make a door and window in the back. Make your house in a warm part of the garden about the first of May. Let your plants have air as soon as you can see them. If you need to shade the plants, it can be done by sprinkling some earth upon the glass. In this way the plants will be kept from the attacks of 'bugs' while young, and being kept warm in cool nights will get such a start that they will be far ahead of those from seeds planted in the open ground."

Bee Notes—Advice to Beginners.

BY M. QUINBY.

Bees should be looked at once a week from April 1st to June 15th to ascertain the quantity of sealed honey on hand. It will now have to be guessed at. Thrifty pros-



FASTENING COMB INTO FRAMES.

perous stocks, should not at this time, (May 1st.) have more than 10 lbs, nor less than 6. Should they, at any time, have more or less and all unsealed, it would pay to feed at once a few ounces every day. And if out of honey they must be fed, or they will starve. The cheapest feed that we have found is a syrup made of 3 lbs of white coffee sugar, and one quart of water. The most convenient and safest feeder is patented. It can be set over a hole in the top or on the frames, and the feed is taken from the bottom of it without exposure to outside bees. When fed by a vessel open at the top, it should be set on the top of the hive, and holes open for communication. After syrup is in the dish, sprinkle on it a thin coating of cut straw or fine shavings, to keep the bees from drowning or sticking fast. Honey can be used instead. Scatter a few drops outside the dish and down through the hole, to show the bees the way. Pieces of comb containing honey may be simply laid on the top of the hive. Over the whole set a box to cover all perfectly tight, to prevent any outside bees from getting a particle or even smelling it. Bees scent honey farther than syrup, and will try harder to get it.

To ascertain if a box-hive has sealed honey, it is necessary to turn it over in the morning—do it carefully without a jar—blow in smoke till the bees run out of the way, and should there be any sealed, it may be best seen when the sun shines clearly. For this purpose—looking inside—and many others, the movable comb-hive has so many advantages over the box-hive, that I hope every one having the box-hive is ready and willing to undertake transferring. April and early in May usually are the best times. Other seasons may do. It is hoped that every one having bees, good or bad, who expects to get anything from them, has looked closely enough to become acquainted, and lose the horrid dread of stings, and get the habit of doing things at the right time. Movable comb-hives should be made so as to accommodate the swarm, large or small, and hold surplus boxes for one or two hundred lbs; or if disposed to extract the honey, double the usual amount of combs may be inserted. The

frames for transferring should be flat on the under side of top instead of having an angle as where comb is to be built.

Get the empty hive ready in every particular. The frames should have a piece across the bottom, that will be one fourth inch from the bottom board. Measure the depth of frame. If it is 12 inches, get out splints 12 1/2 inches long, one fourth inch or less, by one fourth or a little more.

Fifty or more will be wanted for one hive. Get a dish of water for washing off any honey that may stick to the hands, and wetting any knife that you use. Look over the whole ground in imagination, and get everything that you may possibly need before commencing. Go over the whole thing two or three times, when to do it, and how it is to be done, what tools are wanted, and how they are to be used. This will prevent harrying madly, as well as losing time to procure the conveniences to work with at the time. Saw or notch a quarter inch from the end of the splints, so that a bit of twine that is to tie the ends together, will not slip off. The twine should be four or five inches long. Tie one end of the splint firmly, one inch from it tie another knot, then lay in another splint and tie another knot over it, and they will be just one inch apart. Tie a twine on one of the splints at the other end to have it ready for the second knot when the comb is put in. Very fine annealed wire is preferable to twine, when it can be procured. Simply twisting it holds better than a knot, and is quicker done. If but one hive is

to be transferred and no neighboring bees are near to interfere by robbing, do it out of door right by the stand, near the middle of the day, or when warm enough not to chill the brood; or if more than one, when the day is likely to be warm enough for them to fly, it should be done in a room made warm enough to prevent chilling the brood. Exclude the light, except from one window. The hive to receive the bees should set directly under it. The hive to be transferred should be closed and brought in before they fly in the morning. Those with straight combs are most easily worked. Turn the hive bottom up, open the entrance, and blow in some smoke. The bees run among the combs and fill themselves with honey. Take off the bottom, shake the bees on the combs, and smoke them a little more. By this time they lose all disposition to sting, and are perfectly bewildered. You can do many things in the house that they would not allow you to do out of doors. There is really less danger of stings in the house in doing it than in living bees when they swarm. We use no veil, and pay no attention to the bees themselves except to keep from mashing or pinching. They gather in little bunches, and a few may fly and get on the window. If need be, put on the veil. Set over the hive an empty one or a box, that has been made comfortably warm inside. Drive out the bees by pounding the lower hive lightly and rapidly ten minutes with a stick or light hammer, when most of the bees will be in the upper hive. Set it off. The few scattering bees left will not make the first attempt to sting. The next thing is to cut the combs loose from the side of the hive. For this you want a thin, long knife an inch or more in width, and two feet long. As it does not require the best tempered edge, a piece of hoop iron will make it. Grind off the end like a carpenter's chisel. Crowd this down between the edge of the comb and side of the hive; the straight, flat side next the hive, the beveled side next the comb, which will crowd it close the whole length. Saw off the cross sticks. Now take off the side by prying or drawing the nails, or splitting it in pieces with an axe or chisel. Take off two sides or more if necessary to make

it convenient to take out the combs. Then with a sharp, thin knife cut loose the first comb, loosen from the cross sticks, and lay it on a table carefully that has been covered with several thicknesses of cloth. Lay over it the frame, and trim it to fit. A piece of the second comb may be needed to fill it out. Now let an assistant raise the frame and comb, while you slip under the splints in about three or four places to hold it to the best advantage. Let the number of pieces of comb decide the number of splints. Bring the other splints that are already tied at one end over the upper side, and tie at the other end, and it will present the appearance shown in the engraving on preceding page, except the center piece—which we leave out now—generally. Put this in the new hive, and transfer the next in the same way. See that the brood is in about the same relative position that it was before, and near the center and not scattered, that the cluster of bees may cover all. Put the splints over as little of the brood as possible. Cut off all the drone comb and keep it out entirely, unless it contains honey that is necessary for the bees at this season, when it should be by itself, to be taken out afterwards. The spaces of an inch diameter should be filled by the little pieces of worker comb cut off the corners. Spaces less than an inch will not do much harm if filled with drone comb. It will be likely to satisfy the bees. If there is comb enough to fill six or seven of these frames 11x16 inches it will do well enough till after midsummer, when you use surplus boxes. When you have the frames all in place shake the bees that have been driven out directly on the top of the frames, when they will immediately creep down among the combs. With a goose quill or fowl's wing, sweep the few off the window into the hive, and any that may stick around the hive. Put over the frames several thicknesses of old newspaper or any old cloth, to keep the bees down. If the hive is not full of combs put a board next them just the size of frame for the present. If there is no honey smeared or running outside the hive to attract robbing bees, and the day is warm enough for them to fly, take the new hive to the stand at once. Have the entrance as near and as much like the old one as possible. Contract it for a short time, at least, till the bees find they are home and quieted. Leave no possible opening large enough for robbers to get in beside the regular entrance. If any bees were left scattered on the window where they were transferred, it may be opened and every one brushed off, when they will go directly to the hive. After the first day or two, they are no more likely to be attacked by robbing bees than if they had not been transferred. If the weather is warm, the colony strong and getting honey, they will seal the combs to the frames, and join the pieces together in a week, when the splints can be removed. If the combs are not fast leave the splints until they are. Bees seem to renew their industry after being transferred, and will smooth up any mutilation of combs much quicker than any one not acquainted with the matter would suppose. Those who suppose that bees transferred to movable combs will not do enough better to pay for all the trouble just described, should just consider some points in their natural history. It is so ordered by the Creator that every isolated colony will provide all the drones required, and, in doing so, will rear thousands more than is really needed. Nature provides for isolated colonies. When a man brings fifty or a hundred into one apiary, one or two colonies with the drone comb that they naturally make will furnish enough for all. We have found out that eggs laid by a fertile queen in drone cells invariably produce drones, that the same eggs laid in worker cells produce workers. Now if there are no drone cells, the worker cells must receive the eggs, and we get profitable producers instead of idle consumers. The gain here we consider enough in one season to pay all the expense of transferring; and besides this, we are sure to get all straight combs, which the bees do not always build.

The next best time for transferring is three weeks after they swarm. Those who have not the time, or have not the energy to do it now, had better determine to do it then. I will endeavor to describe a hive before that time, as well as surplus boxes.

Ogden Farm Papers.—No. 39.

"Chop 'em over with a heavy hoe and dung him; dang 'em, that'll bring 'im round." This is the advice given by some English laborers, whose advice their master asked about the treatment of a bit of heavy clay land that had been packed by carts until it was as hard as a thrashing-floor. It was given in rude English, but it is full of good sense, as the proprietor found in this case. He reasoned thus: "We'll have a virgin soil in this old clay-pit; we'll

chop him over and dung him, and perhaps the mangels won't know the difference." And they did not. He says they only rasped off some blue clay from the surface; then chopped out the drills after a rain when the ground was soft, applied the manure, and planted the seed. As the mangels could not bury themselves in this hard clay, they had to sit on the surface (on exhibition), but their roots found their way to the manure, and they grew as though they had been in virgin land, and they made a fine crop of very handsome roots.

I know that this is contrary to our preconceived notions, and contrary to much that I have myself written. At the same time, it won't do to be bigots, whatever we are, and there is a lesson in this case which we may as well consider. It is a perfectly well authenticated case, and it shows the power of manure, when applied to the surface of a very hard clay soil, to make as good a crop as it would have done had the soil been deeply plowed. How deep plowing would have affected the case is not known, for the experiment was not tried. The presumption is that, had it been possible in such a soil, it would not have helped the result, for it would have brought up a perfectly crude earth, that had lain for centuries below the shallow reach of atmospheric influences. No general conclusion against sufficient cultivation is to be argued from this instance. Land that is fertile, for a greater or less depth, is certainly benefited by being plowed to that depth, but there is much hard clay land that is not fertile for any considerable depth, and this I think is injured—if not permanently, at least for a very long time—by having the little fertility it possesses (always at the very top) covered over by (or very largely mixed with) the crude clay of the subsoil. With regard to some of the land at Ogden Farm, this is unquestionably the case. I have several times spoken of one section of the farm where we brought to the surface about four inches of cold, blue-clay subsoil, which had never seen the light before. We manured it, froze it, thawed it, fallowed it, and did to it everything that promised relief, but all to so little purpose that I am confident we have lost in interest, manure, and seed over \$100 per acre on it. Time has at last told on it, and so have the roots of the scanty crops it has grown, but even now the best we can say of it is that it has a fair catch of grass, which will need considerable manure to bring it to first-rate condition. Had it been plowed five inches deep (instead of ten) five years ago, as good a stand of grass could have been had the very first year as we now have. It is questionable how much good, in the long run, the deep cultivation may have done. Some, no doubt, but in such a soil probably less than many would suppose. Now let us see how the account stands. There are about eight acres of the land which cost, with the underdraining, \$200 per acre; so the interest account amounts to \$560. The labor has been about returned in crops, certainly not more. Manure and seeds can not have cost less than \$10 an acre per annum, probably much more—and this makes \$400. Total, \$960. Much of the manure lies in the land for future use, but I think my estimate is a fair one—that we have lost \$100 an acre by too deep plowing.

Are we to reason from this that deep plowing is a mistake? Who can tell? Facts are stubborn, and this is by no means the only fact tending in the same direction. Still, there are many authentic instances of the eminent suc-

cess of deep plowing. The character of the soil has very much to do with the question. When this is good for a considerable depth, it may pay to bring up a little of a mellow subsoil to put with it. At the same time, it is very likely that what is brought up neutralizes a proportionate quantity of manure which would otherwise have gone to the formation of immediate crops. Having started my farming life with strong convictions in favor of deep plowing, it is not easy to see them gradually set aside, and it would even now be unfair to say that they are set aside. Nevertheless, I must confess that the older I grow the less I know, and the more am I inclined to heed the counsel of "Universal Custom"—that best of teachers, if we know how rightly to apply its lessons. There is room enough left, in all conscience, to find fault with the practices of common farmers, but they have established some laws that it will be best to follow until we can find better ones. One of these is, and it is a very important one, that it pays best to keep the most fertile part of the soil at the top, and to put the manure on top of that, especially for grass-land—and some day we shall know better than we now do the scientific reason why. That there is a scientific reason for every right or wrong in farming is totally and entirely certain. Until we know more about it, let us "chop 'em over with a heavy hoe (or plow shallow), and dung 'em," and trust that "that'll bring 'im round—dang 'em."

It was not without anxiety that I returned to the farm after an absence of over three months. Any farmer who has left his place for such a period will appreciate my relief on finding everything in substantially as good condition as it probably would have been had I stayed at home. That is to say, there had been no serious mishaps that my presence could have obviated; but he will appreciate the further fact that there was evidence in every department of the effect of *low pressure*. Everything had been run at a sort of "safety" speed, and lacked the *flint* that successful farming needs. For instance, the stock never looked better, and the feed bills could not have been lower consistently with their being kept in fine condition. But at the point of fine condition the economical manager, who was anxious to keep down expenses while keeping up appearances, had stopped. The nutriment needed for vigorous health had been given: the extra amount needed to keep up a vigorous flow of milk had been withheld. The consequence was that spigot-saving in the meal-bin had resulted in rather too much wasting at the bung of interest and general expenses. Every dollar spent for grain, beyond what had been spent, would probably have resulted in two dollars profit. However, any farmer who abandons his farm and goes across the Atlantic, leaving it in the hands of a hired man, may well congratulate himself if, on his return, the only ground he finds for complaint is such conscientious guarding of his outlays as characterized my worthy Haubrich.

I ought not to leave this subject without saying that, although the product of butter was less than I had expected, it rarely fell below 60 lbs. per week from an average of 20 cows, several of which aborted last year, and nearly all of which are to calve this spring.

Aborted! There's the rub. Of all the mysterious accompaniments of cattle breeding, this is the most mysterious and the most deplor-

able. I have racked my brain incessantly to learn the cause, and to devise some treatment that will serve as a preventive, but thus far neither cause nor preventive have been found. We have not as yet had very many cases, but one case, with a thorough-bred cow valued at a very high price, is bad enough. We not only lose the calf, but we also lose (for the time, at least) much of the value of the dam. In the case of common cows, one that has aborted may be at once dried off and fattened for the butcher, but with thorough-bred ones this can not be done. We have to do our best to make them carry their next calves to maturity. If they once do this they are safe. Thus far, I have had no second abortion by the same animal, and I have tried to avoid it by adopting the plan suggested by Mr. C. L. Sharpless; which is to keep the cow from the bull until the November following the abortion, or, if she has aborted later than July, until the second November following. Perhaps even December would be better. The object is to have the fetus too young for the usual period of sinking (say less than seven months old) when the cows are turned out to grass. They should then be put on good pasture, no unruly or quarrelsome animals should be allowed among them, and not too many should be put together. If, with all these precautions, they abort again, they may as well be fattened at once—no matter how valuable they may have been.

One thing seems clear, whatever may be the original cause of the disease, it is contagious, and the closest watch should be placed over the herd, whether in the stable or in the field, to see that any cow that shows indications of calving may be at once removed out of sight and hearing and smell of the rest of the herd. It would even be prudent not to allow a cow to calve at her full period in the presence of the others. Whether the birth has been premature or not, the dead calf and the after-birth should be buried in some place remote from them. No cow that has aborted should be returned to the same stable with pregnant ones until at least a month after the accident, for there is some unknown influence emanating from them which spreads the contagion.

One of our two-year-old heifers, in calf for the first time, kept on a farm a mile away, and fed only on dry feed, has just aborted in her 8th month. In her case there was no possibility of the trouble having arisen in contagion—and unless there was some ergotized grass in her hay, it is impossible to attribute her condition to anything she ate.

Our dairy arrangements have been entirely successful and satisfactory throughout the whole winter, and I do not longer hesitate to advise any farmer who is considering the improvement of his milk-house, and of his system of setting milk for cream to adopt the same plan that we are using. I am confident it is better for both winter and summer than any other now known. The "deep-can" part of the system has been sufficiently described and illustrated in previous numbers of the *Agriculturist*, and I will, at an early day, prepare diagrams of the heating apparatus, which enables us to follow up the same system throughout the winter, and with better results than I have before been able to secure.

One of our unavoidable mishaps was the serious breaking of the windmill in the depth of winter. This showed us the value of a mechan-

ical power for raising water. The tank in the milk-house had to be filled by hand, from a well near by, often enough to keep the water sweet. This was not so very serious, but to haul water from a brook half a mile away to water 60 head of stock was so, and I hope we may never again have such an inordinate labor put upon us. Bad as it was, it was better than to have turned the cattle out of their warm quarters to go that distance in the cold.

The field laid down to grass in 1871 looks very well. We left upon it last fall a long *fog* (aftermath for winter cover), and the grass is now—April 3d—shooting strongly. As soon as the ground is well settled we shall give it a dressing of about 150 lbs. per acre of the Manhattan Company's Phosphatic Blood Guano—to be applied during damp or falling weather, and after the first cutting it will receive about one ton per acre of Fish Guano. Something also after the second cutting. During the winter, some spots on which the grass was thin were dressed with horse manure from the sheds, and this will be dragged down with a chain or a Thomas harrow.

The Jersey Cow at Home.

BY GEORGE H. WARING, JR., OF OGDEN FARM.

I have just made a visit of a week to the Island of Jersey, and I have seen the Jersey cow on her native heath.

The farmers of Jersey have learned how to turn her to even more satisfactory profit than we have. That is to say, where they keep cows exclusively for the dairy, they achieve a better result than any one in America with whose dairy I am acquainted. The great fertility of their soil gives them one advantage, and the mildness and uniformity of their climate another; but still more is due to the enormous extent to which they feed roots. Hay seems to form an insignificant part of their winter food. They use straw much more largely, and have a fair bite of grass all the winter through. They depend very much on a plentiful supply of turnips and parsnips. Indeed, so far as I could judge, these roots are the sheet-anchor of Jersey dairy-farming. The farms are small, rarely, I think, exceeding 40 acres, and very often not over the half of that. The team force of each farmer is very small, but they club together for what is called "the big plow," and do each other's plowing on a social plan similar to our "corn-huskings." If root-culture is their sheet-anchor, deep plowing gives them good anchorage. When land is to be prepared for a crop of parsnips, it is trenched, plowed, and completely reversed, to a depth of fully 15 inches (and often 18 inches), and then such dressings of manure are used as would do credit to a market-gardener. In this way, a small farm is made to carry a large stock, the large stock furnishes manure for increasing production, and the cows partake of the generous richness of the soil and give a rich and abundant yield themselves.

This remark applies more strictly to the older cows. A more magnificent lot of motherly, big-bellied, big-uddered, rich-skinned cows can nowhere be found than could be collected by the hundred in Jersey. They are of the race that has made the reputation of this famous breed. I do not exaggerate when I say that I firmly believe that if the present fashion prevails this race will soon become extinct. A few years ago these cattle were bred solely for butter. Color and form were scarcely thought of. The result was

a class of cattle that the world has never equaled for the dairy simply. Then there arose two influences which have done some harm and will do much more.

1. The desire to convert the *form* of the animal to the standard which has been cultivated in England by the Shorthorn. I was shown the prize bull of 1872. He was a miniature Shorthorn, much fatter than a butter-dairy bull should ever be. Once give the breed the tendency to lay up fat in its flesh, and you may bid good-by to fat in the milk; as the one tendency increases, the other must decrease. I would as soon think to breed beef-stock by using a raw-boned, deep-flanked dairy bull, as to breed butter stock by using one who showed a tendency to lay on fat in his carcass. Of course, no perceptible harm will come of using such a bull for a single cross, but the longer the process is continued, the more fixed will the pernicious tendency become. Further evidence that "fat" is being too much cultivated is to be found in the fact that I was not shown a single cow in what I considered the right state of flesh for milk, whose owner did not apologize for her poor condition. Several farmers said they would not exhibit their cows at the June exhibitions, because they would have no chance for a prize unless they were fatter than it was safe to have them for summer calving. It will be hard to combat this error, for the Jerseyman is a very loyal Englishman, and if fat cattle are in fashion in England, lean ones will not be in Jersey. Yet it would be well if we could, in some way, to induce the owners of this breed at its fountain-head to return (so far as the question of fat is concerned) to the standard of the old stock that we imported fifteen years ago, and that is still well represented among the older cows in Jersey. In the mean time, let not the mote in our own eye grow to a beam. We are not, ourselves, entirely free from the mania for "form." A straight rump is pretty, and it is even very desirable, but before we dispose of a heifer with a sloping rump, let us be very sure what she carries below it. We may lose an udder that would have made the fortune of our herd. Above all, let us beware of *fat*. We want a blooming condition, and flesh enough for vigorous health, but whatever is more than this cometh of an evil tendency to rob the milk of its cream.

2. Much more important than this desire for fine form, is the fancy for color. It is playing the very mischief with the breed, and no one knows it better than the very farmers who are catering to it. They are (and not quite unconsciously) killing the goose that is laying their golden eggs. Of the best fifty cows that I saw in Jersey, not five were of the solid gray color (black points, etc.), fully twenty-five of them had white enough to condemn them in the "fancy" market, and nearly all had what would be considered an objectionable amount. Every farmer with whom I spoke sneered at the idea that solid color was an advantage, but they all said they must breed for their market. They all confessed that in so breeding they were marching on the direct road to inferior milking. One said, "I keep 6 cows, 3 good ones for the kitchen, and 3 gray ones to sell calves from." But even this will not save him. Ten years hence he may not find, in all Jersey, a really good bull to breed from. I did not see one bull-calf being raised that had not been selected *solely* for its color—which means that in a few generations of neglect the dairy quality must run itself out. Neither did I happen to ask after the calf of any superb milker without learn-

ing that if a bull it had been killed because it had white upon it. In not a single case did the farmer deny that such a course is dangerous to the future prospects of the breed, but—"It is the color that sells them, and we must breed for our market."

How does this interest us? Most vitally.

we have in America quite as good Jersey cows as they have in Jersey, and plenty of them.

In Jersey, the larger herds range from 6 or 8 to 25 or 30 milking animals. There are altogether over 12,000 head of horned cattle (all of the one breed), or about 1 to every 3 acres of the whole island, probably 1 to every 2 acres of the

Posts are planted at the proper distances, as many on either side of the stream as may be necessary. A strong wire cord passes through the ends of the posts at a point above high-water mark. The palings are suspended to this wire cord by means of cleats, which form the hinges, and also preserve the proper spaces between the palings. The palings vary in length to suit the inequalities of the surface of the ground. The lower ends of the palings enter openings in a string-board. These string-boards rest in notches formed on the posts, so that they are above the water at its ordinary stages, and the fence is firm and substantial. When the water rises, the string-board is floated out of its notches and carried clear of the palings. The engraving shows one section of the fence adapting itself to a rise in the stream. Each of the palings is now free to move upon the wire without reference to the others, thus allowing drift-wood, ice, etc., to pass without hindrance. Each section opens itself as soon as the rising water floats the string-piece. The suspension wire shown in the engraving is only used when the span is of unusual length. The string-board is secured by a cord or chain, so that it may be recovered when the water subsides; it is replaced by hand. We are informed that this fence has been thoroughly tested, and that its cost does not much exceed that of an ordinary fence.



GILCREST'S FLOOD-FENCE.

We are very important customers of the Jersey farmers, and we have done much to foster the fallacy. Let us do what we can to induce a return to the juster standard—even of beauty—under which the reputation of the breed, for the lawn as well as for the dairy, was founded.

If I owe an explanation for such endless harping on the single string of "color," it is that the more I consider the subject, the more important does it seem. This may well be a *secondary* object in breeding, but the question of dairy quality should always be first regarded.

Setting aside his errors in the matters of form and color, the Jersey farmer is a good farmer, and a good dairyman. And he has a good breed of cattle and no mistake. Good and beautiful, and lovable. Always tethered among the apple-trees, or in the little meadows, constantly handled, and talked to, and made much of, their dispositions have been sweetened and quieted through long generations of gentle care; and their mellow, mild eyes reflect a serenity and peace of mind that betoken all their ancestral ease and comfort. Looking at them with Darwin's "survival of the fittest" in mind, one would almost say that their beauty had grown by long cultivation to suit the charming lanes and hedges from and through which the traveler sees them. Curiously enough, I was able to get few statistics. "Rule of thumb" seems to be the rule in vogue. However, I saw cows

milked, I saw milk skimmed, and I saw the butter that had been made from a certain number of cows. With fair opportunity for observation in various places and at various times, I concluded that the intense high farming and strongfeeding of Jersey, together with the almost perennial green bite out of doors, give results that we rarely attain where more than two or three cows are kept together. Yet I think that

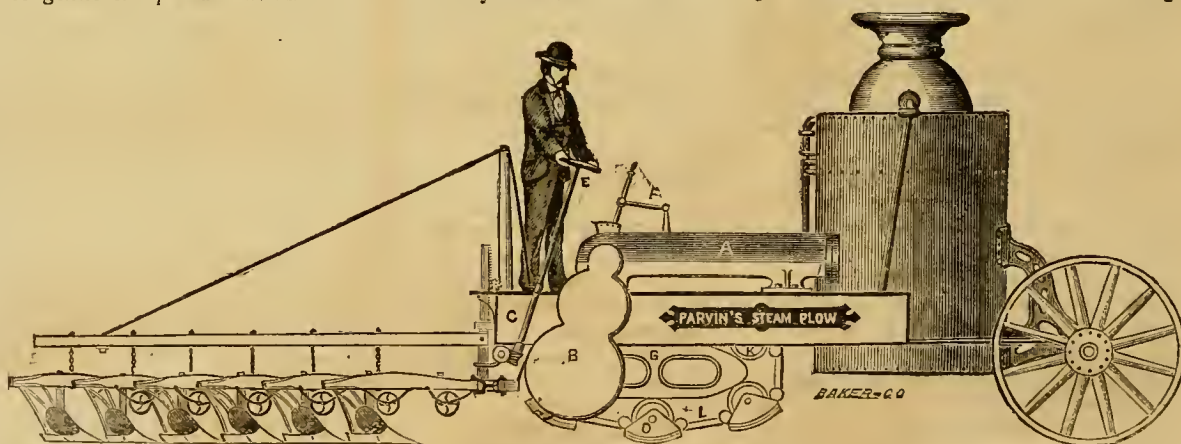
agricultural land. When it is further considered that there are over half a million bushels of potatoes (and lots of other products) exported annually, we see evidences of a thoroughness of cultivation which is worthy of our study. The cow plays a very large part in the economy of nearly every farm, and she aids very largely in securing to the Jersey farmer a degree of comfort and an independence that I have seen equaled nowhere else in Europe—nor is it equalled among farmers of the same class in America.

A New Flood-Fence.

When fences cross streams or bottom lands that are liable to be flooded during a rise in the river, it is desirable to have self-acting arrangements which will present but little obstacle to the passage of the increased body of water, and will not be demolished by drift-wood and other

Parvin's Steam-Motor.

All who have given any thought to the subject feel convinced that American ingenuity will yet devise some means by which steam can be profitably used in plowing. The successful steam-plows in England are drawn by stationary engines, while the American attempts have been mainly directed to producing a locomotive power. As an indication of what is being done, we give an engraving of Parvin's Steam-Motor with plows attached. It will be seen that the machine carries a movable track, and it has been thought that this will obviate the great difficulty heretofore experienced from the sinking of the wheels in the soft soil. Trials of an imperfect machine were made near Chicago



PARVIN'S STEAM-MOTOR.

matters carried down by the flood. Several fences have been contrived for such situations, intended to present a sufficient barrier to animals at low water, and so contrived that when the stream was high portions or whole sections would float. A flood-fence invented and patented by Mr. R. S. Gilcrest, of Ohio, differs from any other we have seen. The engraving shows its construction and manner of working.

last fall, the success of which was recorded in the daily papers. We are informed that since then great improvements have been made, and that a company has been organized with sufficient capital, and that the manufacture of the improved machines has already commenced. Every agriculturist will wish that this attempt to introduce a simple and practicable steam-motor for farm uses may be successful.

Steam on the Farm.

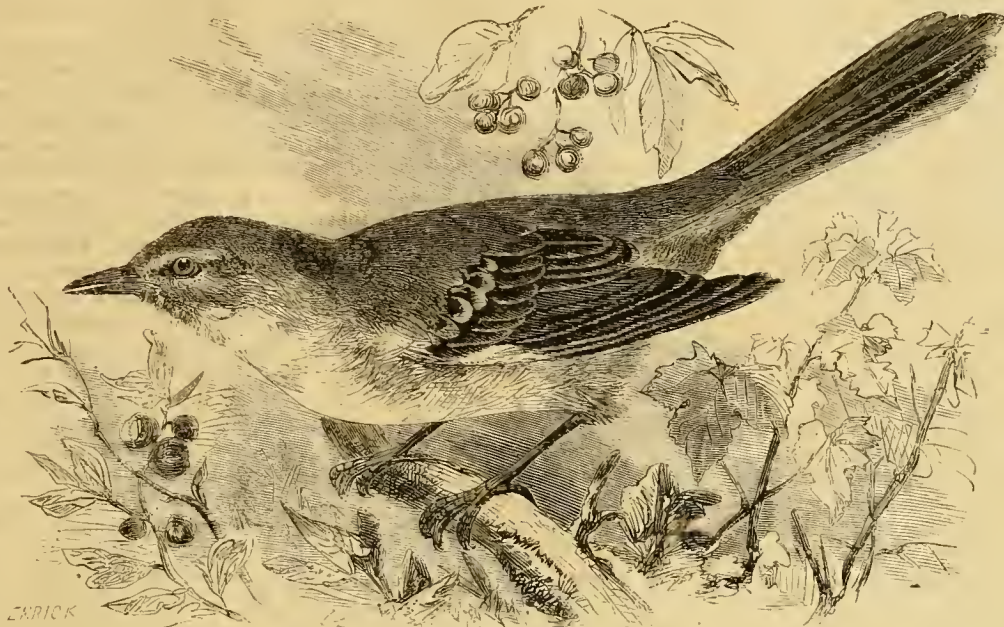
Many years ago, when railroads first came into use, a serious objection was made against them by persons engaged in raising horses, that the effect would be to dispense almost entirely with horses on the roads, and their business would consequently suffer. Events soon showed how unnecessary that apprehension was. Not only was there not any less demand for horses, but the necessity for their services so vastly increased by reason of the immense stimulus given to all sorts of business by the rapid movement of persons and produce, that the demand has never since been equalled by the supply, and the scarcity of horses has been a universal complaint. Now, when steam is being introduced into the business of agriculture, we hear exactly the same prognostications about the displacement of horses. What, then, shall we do with our horses? is the question proposed. The result can not fail to be exactly parallel with the case we have referred to. Steam is gradually working its way into agriculture in spite of prejudice. If it is shown to pay it will be certainly and quickly adopted. Will it pay? is the question now being solved. We believe that eventually it will pay to use it wherever and whenever it can be adapted to our needs. It pays now to thrash, grind, cut feed, saw fuel, pump, hoist weights, and in places to plow and cultivate the soil by steam. Why should it not pay to do all other work that is possible to be done by steam also? Our English brethren are trying experiments, aided as they are by large capital and a class of men who have leisure and intelligence sufficient to enable them to devote their time and energies to these experiments to solve this question, and whether they fail or succeed, we shall reap the gain with them.

We reproduce from an English paper an engraving of a steam mower and reaper, which shows how far in the way of experiment English inventors and capitalists are prepared to go. This machine is worked by a man and a boy, is self-propelling, and weighs no more than the

combined reaper and mower in common use. One of the greatest advantages in using machinery is that when not in use it is not eating, it never tires, heat does not fatigue it, it is not subject to vice, disease, or death, and it works

rival in the Mountain Mocker (*Oreoscoptes montanus*) of the Rocky Mountains. The Mocking-Bird can imitate all of our American song-birds to perfection, and often attempts other sounds, such as the squeaking of a wheelbarrow or the

squealing of a pig, with considerable success. Its food consists of insects and fruit, particularly berries. The Mocking-Bird is rarely seen as far north as the Middle States, although the writer once observed a pair in Springfield, Mass. The nest is built in a hedge or low tree, and is composed outwardly of sticks, and is lined with the finer fibers of roots. In the vicinity of New Orleans and Charleston, the negroes trap young Mocking-Birds and expose them for sale in the markets at fifty cents each. These are bought



MOCKING-BIRD.—*Mimus polyglottus*.

with great rapidity. A few years hence it is not at all unlikely that much of our plowing, cultivating, and harvesting may be done by machines, and probably much of our heavy work on the roads as well. Horses then will be in agriculture as in other business now, not the motive power, but merely an accessory one.

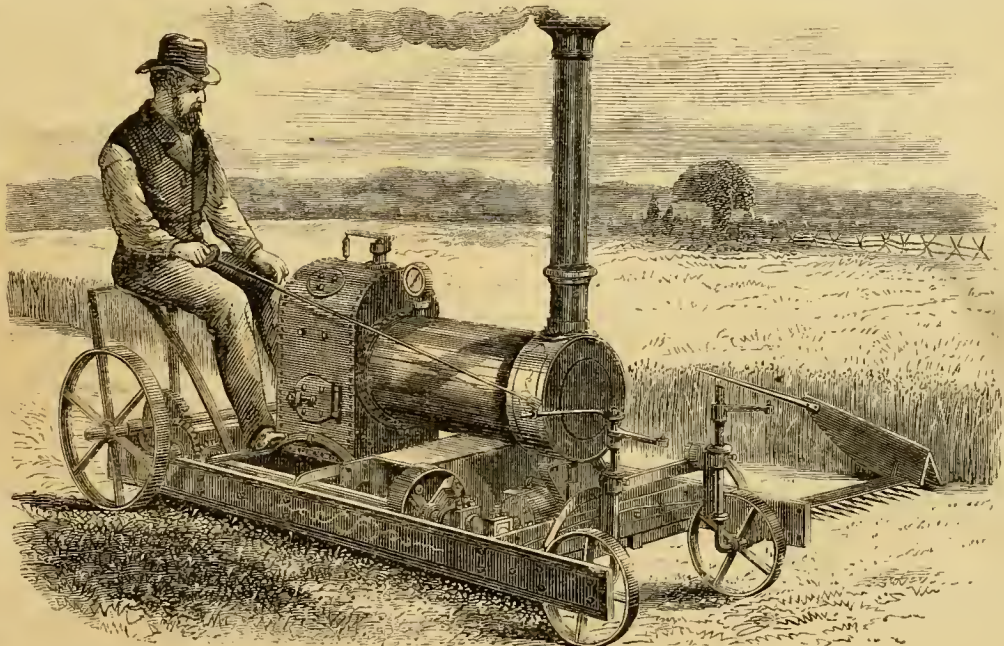
The Mocking-Bird.

The Mocking-Bird (*Mimus polyglottus*) as it appears in a cage is known to almost every

by dealers in birds and shipped in large numbers to our Northern cities, where they are kept until full grown and able to sing, when they are sold at prices ranging from \$10 to \$40 apiece.

DRAINING QUICKSANDS.—The subject of draining quicksands has recently been discussed in the columns of the New York Tribune. The directions generally given by the correspondents of that paper have related to the manner of making a sound, artificial bottom on which to lay the draining tiles. Our own experience in the matter has been considerable, and we have never found this necessary. These sands are *quick* only because they are *wet*, and if the water can be withdrawn from them they will form the best floor that it is possible to secure in such land. For laying tiles, the only thing necessary is to deepen the drain very slowly. As soon as the depth of the water is reached, let the drain be opened for that depth its whole length; then, commencing at the lower end, deepen by a single scoopful at a time, in this way

drawing off the water slowly, and without at any point going so deep as to have a pressure of water from the soil at the side. Opened in this way, little by little, there will be no difficulty in securing a good foundation, and in laying a drain in the most slippery quicksands.



STEAM REAPER.

one, but there are comparatively few of our readers who have had an opportunity of seeing it in its native woods in the South, where being a general favorite it is admired and protected by all. As a songster the Mocking-Bird has no equal in the world, although he has a

Walks and Talks on the Farm.—No. 113.

A prominent Tennessee lawyer writes: "I am a subscriber and reader of the *American Agriculturist* and *Hearth and Home*, and I have been much pleased with your 'Walks and Talks on the Farm,' and I take the liberty of addressing you and making your acquaintance, and calling on you for some information in regard to the sowing, reaping, and curing of corn fodder. I am a native Tennessean. I was a member of the Board of Visitors at West Point, N. Y., last June by appointment of the President, and after leaving there I spent some time North. I saw corn sowed in the State of New Jersey broadcast, and was told that it yielded more feed than any other kind of hay. Will you answer me, either by letter or in your *Walks and Talks*? I wish to know particularly how much corn to sow broadcast per acre, how to prepare the ground for sowing, when to cut, and how to cure, etc.?"

I am always glad to hear from any one interested in farming, and am not disinclined to give my views on any agricultural subject. But in this case I fear my correspondent has applied to the wrong man. If he had written to Horatio Seymour, or H. S. Collins, or Col. Waring, he would have got a more enthusiastic account of the virtues of corn fodder. If, on the other hand, he had written to Harris Lewis, the well-known Herkimer County dairyman, he would probably have been told that corn fodder was the poorest stuff that could be grown—that he had found from actual trial that cows fall off in their milk when fed green-corn fodder.

My own opinion is that corn fodder is a capital crop to raise where you can not grow anything better. On my farm it proves a very valuable crop to feed green to milk-cows the latter part of July, August, and September. I do not say it is as nutritious as good grass; but when the pastures are dry and bare it is a very pleasant thing to see the cows when they are brought up from the field at night feeding from full racks of corn fodder in the yard. They seem to like it. It seems to do them good; and no one has yet shown that this extra feed of green-corn fodder makes the cows give less milk. I do not make the cows eat the green-corn. They have just as much grass as they can find in the field. If they could find all the good grass they wanted I presume they would not eat very much corn.

The real question is, not whether corn is as nutritious as grass, but whether when your pastures are scanty corn can not be used to advantage as a substitute? Even Harris Lewis will admit, I think, that it can be so used with profit. I think all our dairymen are agreed on this.

It has been objected to green corn that it contains too much water. If so, it is an easy matter to remove a portion of it by cutting the corn and letting it wilt a little before feeding. A far more serious objection to it is the large amount of crude woody fiber which it contains. Let us look into this matter, for it is a point of great practical importance.

The following table shows the composition per cent of green-corn fodder cut the early part of August, as compared with field beets or mangel-wurzel:

	Water.	Organic Matter.	Ash.	Albuminoids.	Carbohydrides.	Fat.	Crude Fiber.
Green-corn fodder...	82.2	16.7	1.1	1.1	10.9	0.5	4.7
Field beets.....	83.0	11.1	0.9	1.1	9.1	0.1	0.9

It will be seen that green-corn contains *less* water, or, in other words, more dry matter than beets or mangel-wurzel. A ton of green-corn contains 356 lbs. of dry matter, while a ton of mangels contains only 240 lbs. I am inclined to think that land rich enough to produce 30 tons of mangels per acre would be rich enough to produce 30 tons of green-corn per acre. And this 30 tons of green-corn would contain 5 tons 680 lbs. of dry matter. Or estimating that cured corn fodder contains as much water as clover hay, or say 20 per cent, this 30 tons of green-corn would give 6 tons 816 lbs. of cured corn fodder.

There can be little doubt that in proportion to the time it occupies the ground we can obtain in many sections of the United States a larger amount of produce per acre from Indian corn than from any other crop.

The composition of the dry substance of corn fodder and the dry substance of beets (100 parts of each) is as follows:

	Organic Matter.	Ash.	Albuminoids.	Carbohydrides.	Fat.	Crude Fiber.
Corn fodder.....	93.8	6.2	6.2	61.2	2.8	25.8
Beets.....	92.5	7.5	9.2	75.8	0.8	7.5

It will be seen that the dry matter of the beets contains only 7½ per cent of crude fiber, while the dry corn fodder contains over 25½ per cent. *Can not we manage to grow a variety of corn that contains less of this crude, indigestible woody fiber?*

A crop of 30 tons of green-corn per acre contains 2,280 lbs. more of crude fiber than 30 tons of beets. If we could get rid of say one ton of this crude fiber and nine tons of water, 20 tons would be worth far more than 30 tons.

If there was no more crude fiber in green-corn than there is in beets the composition of the *dry substance* would be as follows:

	Ash.	Albuminoids.	Carbohydrides.	Fat.	Crude Fiber.
Corn fodder.....	7.5	7.5	74.9	3.4	7.5
Beets.....	7.5	9.2	75.8	0.8	7.5

Theoretically, therefore, corn fodder, if we could get rid of the excess of the crude fiber, would be nearly if not quite as nutritious as beets. There is a little deficiency in nitrogenous matter and a little excess in carbonaceous matter. A little clover or bran or oil-cake fed with the corn fodder would supply all the albuminoids required.

In growing corn fodder, therefore, our object should be to select a variety of corn that contains the least woody fiber. I do not think any one has turned his attention to this point. Nearly all the advocates of corn fodder either recommend growing *sweet-corn* or of sending to the South-west for seed of the large Dent variety. If they can get corn that will grow from ten to twenty feet high they think it is a great advantage. I once saw a stalk grown in this State that was 22 feet high. I presume it was about as nutritious as a soft-maple sucker or a fishing-pole.

What we want is a variety that produces the largest proportion of leaves and the shortest and smallest stalk. Instead of sending South for the large, late kinds of corn, we had better send North for the smallest variety we can find—and then make it grow as large as we can by high manuring and good cultivation.

Corn fodder ought to be grown on dry land.

Many farmers if they have a piece of low, rich, mucky land too wet to plow in the spring, sow it to corn fodder or buckwheat because they can do nothing else with it. Occasionally they get a good crop, but as a rule they do not get corn fodder enough to pay for the labor. I would advise my Tennessee friend to select the driest and richest and mellowest land he has. Then *drill in* the corn in rows 3 to 3½ feet apart. Three bushels of corn per acre is none too much. As soon as the corn is up go through it with a cultivator, and a few days later go through it again twice in a row. The object in going twice in a row is to run the cultivator as close as possible to the plants and thus destroy all the weeds. Cultivate frequently as long as a horse can get between the rows of corn. If the land is rich enough this plan will give a large crop of green fodder.

The common mistake in growing corn fodder is in sowing it broadcast. Three years ago I had three acres of warm, rich land where the clover had failed. We plowed it up the last of May and drilled in corn, 3½ feet apart, and cultivated thoroughly. We had a splendid crop. The next year the Deacon thought he would raise some too, and he sowed a piece broadcast on low, wet land. His crop was not worth cutting. Last year he concluded he would drill in his crop, and borrowed my drill for the purpose. After he had got through his faith failed him; and he went over the piece again, drilling in another row between each of the first rows. This of course made the rows so close together and so crooked that he could not use the cultivator. Weeds and corn had to grow together, and the result was what might have been expected—not half a crop, and the land left in a foul condition.

The essential points in raising good corn fodder are: (1) Rich, warm, dry land; (2) a small, early variety; (3) sowing in drills wide enough apart to allow the use of a horse-hoe; (4) thick seeding in the rows; and (5) thorough cultivation.

I have no time now to say anything about curing corn fodder. And in fact I have had little experience on this point. I should never think of growing corn solely for fodder. I would sow enough to insure having an abundant supply of green-corn fodder in summer, and if there was more than was needed cure it for fodder in winter. But *on my farm* it would not pay to grow corn for fodder in winter. It is too much work to cut and cure it. I can raise, cut, and cure clover hay cheaper.

I do not think I ever kept my cows and horses so economically as during the past winter. And the cows have been fed principally on cut corn-stalks, with a little bran and corn-meal. I *drill in* my corn; and last year I not only had a good crop of corn, but also a large growth of stalks. I think this a better plan than raising corn fodder alone. Drill in the corn in rows 3½ feet apart, and put on about as much again seed as you would if planted in hills; and if the land is rich enough you are pretty sure of a good crop of fodder, and stand a fair chance of getting a good crop of corn. This, on my farm, is better than to grow corn for fodder alone.

You must not overlook that little clause "if the land is rich enough." It is no use trying to cheat the land. If the soil is not capable of producing a good crop of corn when planted in

hills 3½ feet apart, it will not be capable of producing a good crop when the plants stand as thick again in the rows. Why should we expect it? It is only on clean, dry, rich land that we gain anything by drilling in corn. And the same is true, I think, in regard to planting potatoes in hills or in drills. If the land is rich enough, you can get a larger crop by planting in drills. You have twice the number of potato-plants on an acre. But until we have got our farms richer and cleaner than most of them are at present, I am inclined to think that it is better to plant in hills. We can cultivate both ways and have a better chance to kill weeds.

"I am glad to hear you say that," remarks the Deacon; "but why don't you practice what you preach?"

I do. I am simply anxious not to mislead. I shall drill in my corn this year, and plant my potatoes in drills and not in hills. And I contend that in my case this is the better plan. But it would not be the best on a great many farms. I use corn as a "fallow crop." I plow up the clover sod early in the fall, and in the spring plow it once or twice and cultivate and harrow thoroughly. I want to start all the weed-seeds. Keep plowing, cultivating, harrowing, and rolling until the last minute. Then drill in the corn as fast as the land can be got ready. If you have worked your land thoroughly, and made it quite fine and mellow, the weeds will be likely to spring up by the million. As soon as the weeds begin to start go over the field with a Thomas harrow. If one harrowing does not pull up and kill the weeds go over it again. And as soon as the rows can be distinctly seen, put in the cultivator, and follow with the harrow. Harrow every three or four days until the corn is five or six inches high. It may pull up or smother a few hills, but this is nothing in comparison with the benefit. Keep the cultivator going until the middle or end of July, or even into August if any weeds still show themselves. In August I would also go over the field with a hoe and cut out any weeds that may be growing in the rows.

This plan of cultivating corn will destroy far more weeds than an ordinary so-called summer-fallow. Last year it gave me not only a capital crop of sound corn, but a heavy growth of good fodder, and left the land, with the exception of one or two patches of thistles, as clean and mellow as a garden. And you should recollect that the weed-seeds were not buried and kept dormant. The weeds were not temporarily held in check. They were killed, and will trouble me no more. I can excuse a man who has recently taken a farm for adopting some temporary expedient for checking weeds, but I have little respect for a farmer who deliberately, year after year, and as a regular system, practices and defends such a course.

I can sympathize with a farmer who does not succeed in killing weeds in his fields, or in getting rid of foot-rot or scab in his sheep; but I have no sort of respect for the man who says that the weeds can not be killed, or the foot-rot or scab cured. The former simply, it may be, fails for want of energy, promptness, and perseverance, or from ignorance as to the best methods; but the latter, while he may be a good "practical" sort of man, is an intellectual dwarf, and is almost invariably as conceited as he is prejudiced and ignorant.

Of course our flocks will always be liable to attacks of foot-rot and scab, and weeds will continue to grow. But the weeds in six inches

of surface-soil can all be killed, and the scab and foot-rot in a given flock can be cured. If, after we have succeeded in killing all the weeds and all the weed-seeds in six inches of surface-soil, we plow up an inch or two more land, the weed-seeds in this fresh earth will spring up, and must be destroyed in the same manner as the first; and after you have cured the scab a single scabby sheep from an infected flock will communicate the disease to your healthy sheep. But while this is true, shame to the man who says scab and foot-rot can not be cured.

Several gentlemen have written to me in regard to our Drainage Law. They will find it in the Statutes of New York for 1869, chap. 888, and in the Amended Statutes of New York, 1871, chap. 303. The law is very crude and imperfect, and needs a thorough revision, but it has proved very useful. The great point is to get good commissioners.

Where the work is not extensive, the better plan is to endeavor to do it by mutual agreement. Call a meeting, and talk the matter over in a friendly spirit, and agree to let some one or two good men say what proportion of the expense shall be borne by the different farmers interested, according to the extent of land to be benefited by the draining.

If anything, wages are higher this spring than ever, and the men more inefficient. They seem to realize that it is impossible for them to earn their wages, and they do not try! I am inclined to think that farmers will put in less corn than for several years past, and that a year from this time will find our cribs and granaries comparatively empty. I am not planting half as much corn or potatoes as usual. I am letting the land lie in grass and clover.

In this section no crop brings in so much money in proportion to the labor as hay. We shall have to make a business of growing it. On strong, heavy clay land that is not dry enough to grow winter wheat it will pay to summer-fallow for timothy. Plow the land two or three times and get it into good order, and sow it to timothy in August. If the work is well done we may expect a good crop the next year, and a better one the year after. One advantage of this plan is that only such parts of the field that are likely to be benefited need be plowed. The remainder of the field may remain in grass, either for pasture or for hay. It is true we lose the fall pasture, but it will do the meadow no harm to let the grass rot on the ground.

"I tried this plan on one of my meadows," remarks a friend, "and the result was not what I expected. There was a patch of thistle in the field, and I plowed up the land and summer-fallowed it, and sowed it to wheat and seeded it down. I did not get five bushels of wheat per acre."

Very likely. But this is no argument against the plan I have recommended. The land you plowed was a sandy knoll—such land as no sensible farmer would think of fallowing for any other object except to kill weeds. It was a good thing to plow it and kill the thistles; but you should not have sown it to wheat. You should have sown grass-seed alone. If you had done this, and had plowed in a good coat of manure, the probabilities are you would have had a good crop of grass the next year and better the year after. It is the rich, clay lands, abounding in dormant plant-food, that are most benefited by fallowing—not the poor light sands. Fallow your clayey and manure your sandy land.

I had a case in point on my own farm. One of my knolls was full of stones, and I plowed it repeatedly to get out the stones. The land on this knoll was a calcareous loam. It had never produced half a crop since it was cleared of timber, fifty years ago. Since I plowed it so thoroughly and got out the stones it has produced heavy crops. It is true that the whole field had a good dressing of manure. I had another knoll, full of stones and thistles, that was a light sand, poor as poverty. This I treated in the same way, except that the field was not manured. On this knoll the wheat was so poor as hardly to be worth harvesting. The land needed the repeated plowings to kill the thistles and to get out the stones, but it needed manure also.

Roots as Manure.

It has been found that the roots of a good crop of red clover left in an acre of land after the removal of the crop weigh six thousand five hundred and eighty pounds, or from three to three and a half tons. The same examination gave the weight of an acre of rye roots at thirty-five hundred pounds, and of wheat roots at thirty-four hundred pounds. All of this matter is of course valuable for the use of such crops as may be grown during or after its decomposition. The well-known superiority of clover as a manuring crop, however, is not due alone to the greater amount of organic matter, taken mainly from the atmosphere, which its roots supply, but also to the position in which this matter is deposited. The roots reach deeply into the soil, and on their decomposition they serve to draw moisture from the lower soil, and by the decomposition of fertilizing matter to a considerable depth they induce the descent of the roots of other crops to a point where they are much more sure of a supply of moisture during dry seasons than they could be if nearer the surface. Then again, these deeply penetrating roots traverse parts of the subsoil not heretofore open to vegetation, and in their decomposition they produce a chemical effect on the inorganic substances that lie along their courses, and help to render them, too, serviceable for future crops.

Dipping Sheep.

There is given on this page an engraving of a tank and appliances for dipping sheep. This is an operation that ought to be performed at this season on every flock, both sheep and lambs. Vermin which infest sheep greatly increase during the winter. Often cutaneous disorders, as scab, have largely spread throughout the flock. All these have an injurious if not destructive effect on the sheep and their fleeces. Dipping in the various solutions in vogue, which have been heretofore described in the *American Agriculturist*, destroy the vermin and cure skin diseases. The improved condition of the sheep's health acts on the growth of the wool, which becomes heavier and of more even staple. The tank shown in the engraving is a water-tight box just large enough to hold the sheep. There is a false bottom, perforated with a number of holes and suspended by cords, on which the sheep is represented as standing. The cords are wound on the rollers seen at the ends of the tanks. One of the rollers has a crank on one end, and each of them has a grooved wheel or pulley around which a cord

is passed. When one roller is turned by the crank the other is also turned, and the sheep is gradually lowered into the dipping liquid in the

and the severity of it is seemingly increased when we consider that by a little arrangement the work can be done by the horses, and the farmer's muscles be spared. Every farmer ought to have a horse hay-fork. Those that have one can procure two poles 14 or 16 feet long, tie them together at the top, stay them with one or two guy ropes to the barn-yard fence, and hang the horse-fork tackle to the top of them. These poles may be placed one on each side of the manure pile, as in the engraving, in such a position that the fork may be made to take up the manure and drop it into

the wagon-box without any other handling being needed. The lower pulley should be fastened to one of the spokes of the wagon wheel, as shown in the engraving; or one or both horses are removed from the wagon and hitched on to the rope, and in five minutes two smart boys of twelve years of age, who could not easily lift a hand-forkful of manure into the wagon, can put up a good load.

Castor Beans.

For a crop of castor beans the ground should be well plowed and harrowed. Lay it out in rows six feet apart, and between every sixth and seventh row leave a space wide enough for a wagon to pass through when gathering the crop. The seed should be covered with hot water, and be allowed to stand 24 hours before planting. Six or eight seeds may be dropped in a hill as soon as the ground is warm, to be thinned out to two plants when all danger from cut-worms has passed. The

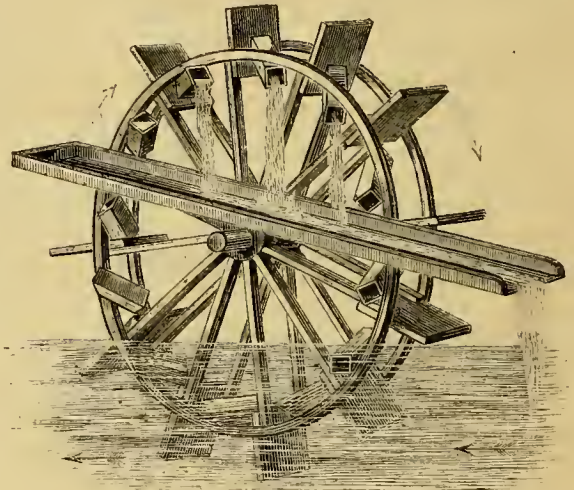
ground should be cultivated until the plants are three feet high. About the first of August some of the seeds will be ripe, and must be gathered immediately, or the pods will burst and the beans pop out. The clusters of seed-pods which are ripe are cut off entirely, and the gathering continues until frost kills the plants. The pods are to be scattered upon a piece of hard, smooth, cleanly-swept ground, surrounded by a fence, and they are to be turned and dried until all the beans are shelled out. Then the floor is cleared for another lot. If rain is expected, the beans must be raked up and covered and kept

dry. The beans are cleaned in a common fan-mill, and should be kept in sacks in a cool place until sold. Twenty bushels per acre is an ordi-

nary crop, and the market price is generally \$1.50 a bushel in St. Louis, which is the principal market in the North-western States. The refuse of the oil-mills makes a valuable fertilizer, being worth nearly one third as much as guano. For composting with coarse vegetable matter or swamp muck it is especially useful. As feed it is totally useless; in fact, from its strong purgative qualities, it is dangerous to stock, and they should not be permitted access to it.

A Water-Wheel for Irrigation.

The vineyards which lie along the banks of the rapid rivers of Northern Italy are supplied with water raised by water-wheels. The same device might be made useful in many places in our own country. It is shown in the accompanying illustration. The wheel is made roughly of wood, after the manner of the paddle-wheel of a steamboat, and is made to revolve by the flow of the stream in which its lower part is immersed. Buckets, which are merely board boxes about 10 inches square and 20 inches deep, are fixed to the rim inside of the paddles. As each bucket passes through the

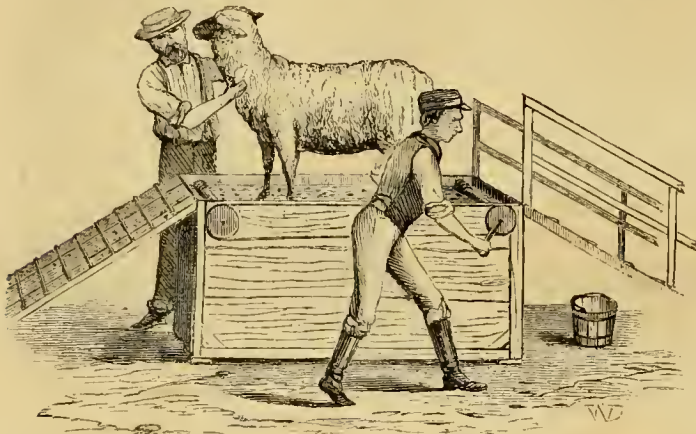


WATER-WHEEL FOR IRRIGATION.

water it is filled, and its position is such that it rises nearly full. As it approaches the top, and, in the revolution of the wheel to which it is fixed, is gradually turned upside down, its contents are poured out into a trough which leads the water away to the land. The mouths of the buckets project a little beyond the rim of the wheel so as to discharge at the center of the broad gutter, which is removed only to sufficient distance to allow the ends of the paddles to pass. The size of the wheel must be regulated by the force of the stream and by the height to which a certain quantity of water is to be lifted.

Broom-Corn Culture.

We have before us a great number of inquiries about the cultivation and management of broom-corn and its manufacture into brooms. At the outset it would be proper to caution farmers to whom this crop is a new one against rushing into it unadvisedly, for it is one of those special crops which depend on a great many contingencies of soil, seed, weather, care in harvesting and preparation for market, to say nothing of the uncertainties of the market, which are

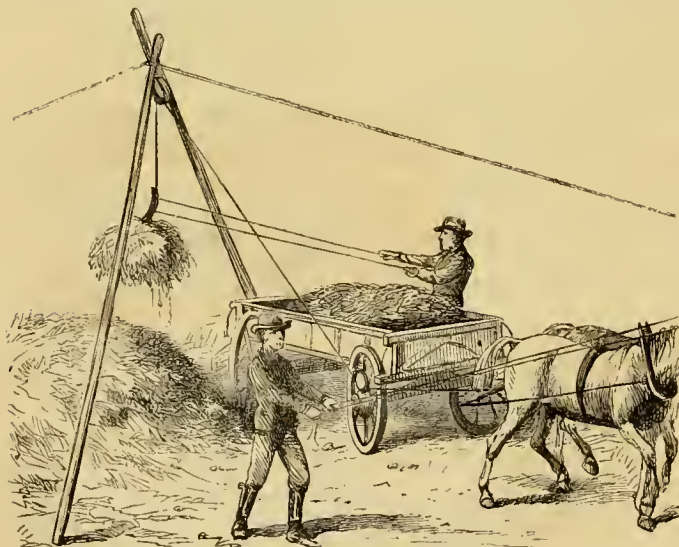


TANK FOR DIPPING SHEEP.

tank. The sheep is led up the gangway quietly on to the movable bottom, there is no plunging or splashing, and when the dipping has been given, the floor is raised and the sheep's fleece is squeezed free from all superfluous dip, which drains away through the holes into the tank again. The sheep is allowed to depart by way of the sloping platform as quietly as it was brought up. As the dip is used up the tank should be replenished from a barrel near by. The lambs should be dipped after the sheep are shorn, as then all the vermin will have gathered on to them and may be destroyed with ease.

The Use of the Horse-Fork.

The mechanical appliances for aiding the labor of the farm are not nearly so much availed of as they might be. To confine ourselves to only one illustration of this we here refer to a use that may be made of the horse hay-fork at this season. We have made considerable use of it to load manure from the pile in the barn-yard. Loading manure is the hardest work the farmer has to perform, and it has almost always to be done in a hurry. If 100 loads of manure



ARRANGEMENT OF HORSE-FORK FOR LOADING MANURE.

have to be hauled out, there are over 200 tons to be lifted by the hands and arms a height of five feet into a wagon. This is severe labor,

a serious item of consideration in themselves. While when all goes well it is a paying crop, it would be wise that the culture should be gradually undertaken, and just enough raised for home use to be worked up for domestic purposes, until it is certainly known that the conditions for success are favorable. The soil must be good. Fair corn land will do for a crop for home use, but for marketable brush the land must be rich enough to bring 50 to 75 bushels of shelled corn per acre. Such land as the Connecticut, or Mohawk, or Miami river bottoms, or the rich Western prairies, well plowed just before planting, and well harrowed and



Fig. 2.—CLEANING THE BRUSH.

free from weeds, will be suitable; and it would pay better on any other than such land to grow almost any other crop.

The seed should not be planted until the weather is settled and the ground is warm; the middle of May until June, 10th would be a proper seed-time in any locality not subject to early autumn frosts. There are several varieties of seed. The Tennessee Evergreen produces fine brush, and yields 1,000 pounds to the acre. The Missouri Evergreen has a longer, coarser brush, and requires closer planting than the former to make fine brush. The Mohawk, Shaker, and Early York are the kinds produced chiefly in the Eastern States; they produce a light short brush, which must be cut early, as it turns red soon after blossoming. A dwarf broom-corn, for making whisks and brushes, is

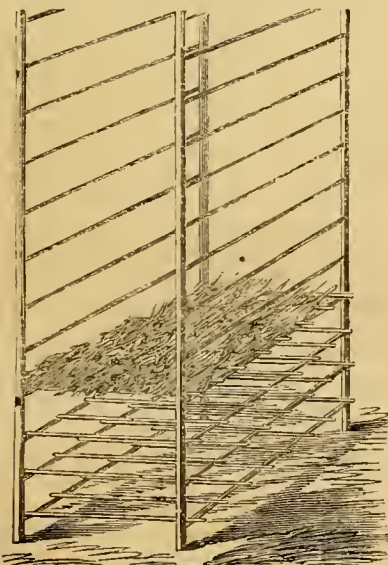


Fig. 3.—DRYING RACK.

sometimes grown, which yields 1,200 to 1,500 pounds per acre, but there are difficulties attached to harvesting it which make it an undesirable crop. About two quarts of seed per acre are required, with four or five stalks to the

hill for long brush, and eight or more for short or inside brush. If planted in drills—which is by far the best method—the seed should be dropped two or three inches apart in the row. An Emery corn-planter may be used for planting in drills, which should be $3\frac{1}{2}$ to 4 feet apart; or any of the common corn-plinters which have broom-corn attachments may be used. Some of these plant two rows at once, finishing 20 acres a day with two horses. They should be set so as to cover the seed less than an inch in depth. That this may be done regularly the soil must be very fine and smooth. The cleanest cultivation is required. Shares' horse-hoc, or a V harrow with the center-tooth removed and made to straddle the row, are convenient implements for this purpose. Each row should be cultivated once up and once down each time to effectually kill weeds. The crop should be harvested as soon as the blossoms fall, so that the brush may be of a light green color, and tough and elastic when cured; if cut later than this the brush loses weight. It is in the cutting and curing that the price is made; well-cured green brush brings readily \$120 to \$140 per ton, when over-ripe, red brush will hardly sell for \$40 a ton. When ready to cut the brush is to be "tabled." This operation is performed by bending the stalks about 30 inches above the ground, and laying them flat over towards the next row in a diagonal direction, so that the brush overhangs the next row about a foot. The second row is broken down and laid over the stalks of the first row, interlacing with them and forming a table 30 inches above the ground. Two men or boys pass up the rows breaking and laying down the stalks in this manner. This operation of "tabling" is shown at figure 1. Then the cutters follow, armed with sharp knives similar to shoemakers' knives, and cut the brush with eight inches of stalk, no more nor no less, and lay it on the table. If the butts are less than eight inches long it is a loss to the grower, as it reduces the weight of the brush; if it is cut longer the extra length is waste, and the value is reduced.

In wet, hot seasons the growth of brush is very rapid, and the straw being weak and soft it bends and becomes crooked, and its value is lessened; all crooked brush should therefore be kept and packed by itself, lest being mixed with straight brush the value of that should be reduced proportionately. Crooked brush is the result of one of those contingencies of weather that the grower can not guard against, and he must make the best of it. It will happen with all varieties of corn. As the brush is cut it should be hauled to the barn and put under cover without loss of time; the green color is very soon changed by sun-light to a straw color, and the value thereby reduced. The brush should be laid in the wagon straight and even,

the crooked being kept by itself, and on its arrival at the barn it is put through the scraper to remove the seed. This is a machine (figure 2) run by a horse-power, and contains either one or two drums, or cylinders, furnished with short teeth similar to those of a thrashing-machine. The brush as it is taken from the wagon is laid on a table, and from thence is



Fig. 1.—TABLING AND CUTTING BROOM-CORN.

taken by the butts in handfuls and thrust into the scraper until freed from seed. If there is but one drum the brush must be turned; if there are two drums, one exposure of the brush to their teeth for a moment is sufficient to clean it.

A boy then takes the brush and spreads it on the drying-racks in the barn or dry-house. If a large quantity is grown, a dry-house, similar to a tobacco-house, with every fourth or sixth plank hung on hinges is needed; but for a small quantity racks may be set up on the floor of an ordinary barn. The simplest kind is made by taking poles or light scantling two by two and eight to twelve feet long, and nailing strips four feet long six inches apart on every pair of them. Common sawed lath free from knots or knot-holes make good strips, as the brush is very light. The racks are set up in rows, three

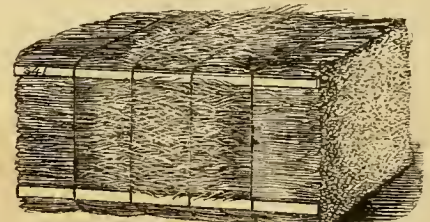


Fig. 4.—BALE OF BROOM-CORN.

feet ten inches distant from each other, and laths are laid a few inches apart on the cross-pieces, making a succession of stalls with shelves six inches apart, through which the air has complete access. The racks are shown at fig. 3. The brush is laid on these lath shelves not over two inches in depth. It should be quite free from moisture when placed on the shelves, or it will heat or mold and lose color. Here it remains, getting plenty of air during fine days, and being shut up when there is rain, until perfectly dried. It is then ready to be baled. For this a hay-press is needed. The brush is

selected to commence with, as the outside of the bale should always be of the best: it is laid smoothly, with the butts quite even at each end of the bale, the brush lapping in the center. The brush is thus laid in, always being carefully placed that the bale may come out square at the ends and neat and smooth. The bale is pressed very tightly, so as to get 300 pounds or over into a space of three feet ten inches long, twenty-four inches wide, and thirty inches deep. A stout lath is placed at each corner to protect the brush, and the bale is bound by four or five No. 9, or common fence wires. At fig. 4 is shown a finished bale with the weight marked upon one of the corner laths. The different qualities of brush are baled separately. The crop is then ready for market.

Broom-corn is one of those things in which "corners" are occasionally got up, by which the farmer is victimized; it is therefore well to be careful about the person to whom the produce is shipped, and generally it is safest to sell at once when the price is satisfactory; holding for a rise brings many a farmer to grief.

How To Set a Horse's Broken Leg.

[Many a horse with a broken leg is killed to put it out of its misery that might, with proper treatment have been cured, and if not made as valuable as before at least saved to many years of useful labor. Skilled Veterinary Surgeons are yet rare, and in the country very seldom to be found. It is much to be regretted that physicians and surgeons generally think it beneath them to treat domestic animals. This is not the case, however, with a surgical friend of ours who has had much success in treating fractured legs of horses, and has had the satisfaction of seeing several animals that would otherwise have been killed made useful to their delighted owners. At our request he has written out his method of treatment.—ED.]

Thanks to the application of common-sense to surgery, we have now at our command a successful method of treating fractured limbs among our farm stock. For curable cases this new method will give a good percentage of fair results.

Here it is. Suppose we have a horse with his hind leg broken six inches above the fetlock. The first thing to do is to make for him a firm, narrow stall, not much wider than is absolutely necessary to enable the animal to stand, or a pair of stocks such as are used for shoeing refractory colts or mules. Arrange a windlass by which, when a band of the strongest sail-cloth or some similar material is placed under the animal's belly, his hind quarters can be lifted clear of the ground. This belly-band should be one and a half to two feet wide, and long enough to allow its ends to be level with the horse's back. Thus it makes a snug cradle in which the patient can rest. Put now a collar on his neck, and to it attach a strap which shall extend from it between the front legs to the belly-band, and thus prevent that from sliding backwards or wrinkling into a band narrow enough to pain the horse when his weight comes to be borne by it.

Now having attended to the preliminaries we are ready to set the limb. See, first of all, that the leg is well clear of the ground, making sufficient allowance so that when the belly-band stretches it will not allow the foot to reach the ground. Bandage the leg smoothly but not too firmly from the foot up to above the "knee" with a flannel bandage two or three inches wide.

Now take *canton-flannel* with a good nap, and wide enough to cover the entire bandage, cut it into such shape as will accurately fit around the leg—then make five more just like it. Take six pounds of the best freshest Plaster of Paris, not land plaster, but such as is used for hard finish, and stir enough of it slowly into two quarts of cold water to make a mixture as thick as cream. Saturate one of your last made *canton-flannel* envelopes for the leg in the mixture, then lay it on a board with nap side up, and pour on to and rub into it as much of the liquid plaster as it will hold. Next rub into the same flannel enough of the dry plaster to fairly thicken and toughen it.

Treat another piece of flannel exactly the same way and lay the two fairly together one on top of the other, and promptly bandage them around the leg, which is now to be held in its right position until the plaster hardens. Meanwhile spread over the last bandage a thick coating of the wet plaster with your hands; and then prepare two more pieces of *canton-flannel* as before; apply these over the first two and surround them with a bandage which is also smeared with wet plaster.

And, finally, the last two pieces of flannel are treated as the others have been, and in turn are to be well bandaged and the remaining Plaster of Paris rubbed into the last bandage. This, when it has set, which will be in a few minutes, will give not only a hard but a tough splint that fits the leg so closely and keeps the ends of the bone in such exact position as to render displacement impossible; providing the leg has been properly held while the plaster was hardening. Everything must be in readiness before the plaster is mixed with water, and it must require less than half an hour to saturate and apply all the flannel and the bandages, or the plaster will have become quite too hard to work. By the time the last bandage is to be applied it will be seen that the plaster has become thick and pasty, and is then in good condition for coating over all with the hand.

This would be my plan (as it has been, and successful, too,) for the fracture I have described.

The principle involved in any other case and with other animals would be similar; with such modifications as common-sense suggests.

I contend that an effort should be made in almost every instance to save the unfortunate animal. I have cured a number by the method detailed above.

The average time would be from six to twelve weeks before the belly-band can be removed and the limb tried. It may be necessary to renew the splint once, and it should not be finally taken off until some time after the leg is walked upon, as it affords additional strength to the point of fracture. What I have written may not be new to some readers. I am certain it will be to others, and for them I have written.

Feeding Young Trout.

BY FRED. MATHER, HONEOYE FALLS, N. Y.

After trying three years to find live food for my fry so that the diseases caused by decaying food on the bottom of the troughs would not kill half of my "babies" every year, I have at last found it, and give it to your trout-growing readers in season for this year's crop.

Having tried to breed several species of crustacea, insects, etc., I found accidentally, while straining rain-water for laundry use, the article so long sought, the "wiggler" or mosquito

larva. I fed them last season with the most gratifying results, and am making arrangements to do it on a larger scale at my ponds at Honeoye Falls, N. Y., this coming season.

Probably two barrels will be enough for each thousand fish, and the larvæ can be collected much easier than the same bulk of liver can be chopped. Having sent out both spawn and young fish to readers of the *Agriculturist*, I feel it my duty to keep them fully posted on all matters of importance.

Nutritive Value of Feed.

The proportionate values of the following materials used for feeding farm-stock are gathered from published analyses by the most eminent agricultural chemists, and have been corroborated by the results of the practice of many eminent English feeders. They include the relative flesh-forming, fattening, and total feeding values of the different articles mentioned, and are probably the most trustworthy information that can be gathered from all sources at the present time. They are as follows, equal weights of each being considered.

	Flesh produc- ing.	Fat produc- ing.	Total Value.
Turnips.....	1	5	7
Rutabagas.....	1	7	9
Carrots.....	1	7	10
Mangels and Kohl Rabi.....	2	8	12
Straw.....	3	16	22
Potatoes.....	3	17	22
Brewer's grains.....	6½	18	25
Rice Meal.....	6½	77	83
Locust Beans.....	7	72	82
Hay (early cut).....	8	50	64
Millet (seed).....	8	76	85
Buckwheat.....	9	60	69
Malt.....	9	76	81
Rye.....	11	72	80
Oats.....	12	63	79
Corn.....	12	68	80
Wheat and Barley.....	12	67	82
Dried Brewer's grain.....	16	70	87
Palm-nut meal.....	16	98	82
Earth-nut cake.....	20	40	54
Beans (English field).....	22	46	74
Peas.....	22	60	79
Linseed.....	23	112	82
Cotton-seed cake.....	24	46½	61
Malt sprouts.....	26	60	87
Tares (seed).....	27½	57	79
Linseed cake.....	28	56	73
Bran and coarse Millstuf.....	31	54	76
Rape cake.....	31	53	78
Decorticated Earth-nut cake.....	39	45	72
Decorticated Cotton seed cake.....	41	57	82

In these estimates the flesh-forming value is in proportion to the nitrogenous elements contained in the food. The fat-formers consist of starch, oil, and fat; and as oil and ready-formed fat is estimated as double the value of starch in feeding, the total feeding values of different articles varies in somewhat different ratios to those of the fat-forming elements. For instance, while bran contains more carbonaceous matter, viz.: starch and oil together, than rape cake, and exactly the same flesh-forming material, yet its total feeding value is less than that of rape-cake, because the 53 parts of starch and oil in the rape-cake have more oil and less starch than the 54 parts of starch and oil in the bran, and the oil being, as we have said, more valuable than the starch, therefore the rape cake is worth more than the bran as feed. The numerous inquiries that have come to us as to the value of various feeds are here answered.

Cultivating Flax.

Flax or linseed may be grown on any moderately rich soil, whether upland or bottom. A moist bottom suitable for oats will grow good fiber, and a sod properly plowed under is adapted for it. If the object is seed, and not

the fiber, a good dry upland is most suitable. When seed is grown the quality of the fiber is sacrificed, for if seed is desired a branching open stalk must be produced, and to secure such a stand thin seedling must be adopted, not more than half a bushel of seed per acre. The soil should be made very fine by repeated harrowings, the seed sown evenly broadcast, and covered slightly with a bush harrow. Early sowing is desirable, but a crop may be grown from seed sown early in May. Flax is an excellent shade crop, and leaves the ground mellow and free from weeds, and in good order for a following crop of wheat on ground rich enough for it. As soon as the seed-bolls turn brown the crop should be cut. Either the cradle or the reaper may be used, and the crop raked into gavels as in harvesting buckwheat. It is unnecessary to bind it unless it is saved for the fiber. When dry enough, it may be thrashed out by the flail or the machine. Most of the fan-mills have sieves for cleaning flax, and any manufacturer of these mills can supply them. Ten to twenty bushels of seed is an ordinary crop, and the straw as it comes from the thrashing-machine makes excellent paper-stock. If there is any demand for the fiber within practicable distance it will pay very well to bind the straw in bundles, thrash out the seed, and expose the straw to the rotting process by which a ton of valuable fiber may often be procured from each acre of ground. The cake left as the residue after pressing out the oil is one of the most valuable articles of feed; and if used on the farm, and the manure returned to the soil, a crop of flax may safely be grown once in five years in place of a crop of corn, which requires more labor, and brings in much less money to show for it.

JERSEY CATTLE FOR-BEEF.—It is frequently objected to the use of Jerseys and their grades, that although they are valuable for the dairy, a common farmer can not afford to grow stock which will not be useful for the butcher when its dairy days are over. This implies that the Jerseys do not fatten well, an opinion for which there is not the slightest foundation. A good Jersey, so long as she is milking, turns her fat into the pail to that degree that she looks like a rack of bones; but when she ceases milking she does not lose her appetite, nor does she waste the fat-producing elements of her food. On the contrary, she stores them away in a rich, highly-colored, and well-flavored deposit, that makes much better beef than can be obtained from any other cow of her age and size.

High-Feeding Thorough-bred Animals.

Fisher Hobbs, the well-known breeder of Essex pigs, once remarked to a gentleman who had bought one of his sows: "Don't overfeed; make her work hard for her living." Right or wrong, many experienced breeders think it very injurious to overfeed their breeding animals. We think there can be no doubt on this point. But then it is still an open question, What is overfeeding?

At the National Convention of Shorthorn Breeders at Indianapolis, this subject was introduced and called out a great diversity of opinion. Mr. Sodowsky, of Illinois, said: "A year ago I bought a cow, one of the fattest animals I ever saw, and on February 16th she produced me as fine a calf as I ever saw produced."

Mr. Duncan, of Illinois, was convinced that cattle are as liable to fail to breed in low order as in high order.

Mr. Dye, of Illinois, said it was a theory of his that high feeding had rendered our blooded stock less productive than our common cattle.

T. C. Jones, of Ohio, said, "as a matter of fact, when animals are very fat they are not so liable to breed as when they are only in good condition. Mr. Booth [the well-known English breeder] had stated that he will never show again. His cattle are all running out, and he says that the infertility of his leading families must be attributed to high feeding for the shows."

Mr. Duncan, of Illinois, a breeder of great experience, said: "I favor breeding from animals in the very highest condition that it is possible to keep them for that purpose, for the reason that the general law of nature that like produces like, comes in and operates in my favor. You may take the highest breed of animals and breed from it for generation after generation, but if they be poorly fed you will make scallawags of them; while if you keep them in the highest condition possible, you will increase the natural propensity to take on flesh, and thus nature assists you as breeders and farmers in the development of the qualities for which these animals are chiefly valuable."

This, so far as it goes, is very good reasoning. Mr. Duncan continued: "What was it that gave Mr. Booth his notoriety as a breeder in England? Mr. Booth and Mr. Bates were the rival breeders in England, and in consequence of their rivalry, they bred from their animals in high condition, and when Mr. Booth was asked by the American agents if he was not afraid to make his animals barren by keeping them in such high condition, he said, 'Gentlemen, these are fat beasts by nature. It is as natural for them to breed in their condition as it is for the ordinary cattle of the country.' My opinion is this," continued Mr. Duncan, "that the breeding period of any animal can be shortened by their being kept in show condition for too long a time, and yet I believe I saw quite a number of times, myself, *Young Mary*, sold by the Ohio Importing Co., and purchased by Capt. Cunningham, in the show rings, in high condition—still that cow produced her last calf in her twenty-first year. That is a fact. . . . I do not believe it shortens the breeding period to keep them in good condition at one year old, or two years old, or anything like that, but still I would not go further; but I would keep them at those ages in as high condition as possible, in order to have them heavy producers."

This is the true doctrine, and one which we have repeatedly advocated in the *American Agriculturist*. Let all animals bred principally for meat, have all the food they can eat, digest, and assimilate while young. As long as they will grow, let them have all the nutriment they can convert into growth. It will not hurt them. But when they have attained their growth, then feed only enough to keep them in the highest health and vigor. Close confinement and high feeding with rich concentrated food are quite likely to prove injurious. Our own aim is to give animals that have got their growth as much exercise as possible, and abundance of food, but not of too nutritious a character.

Mr. Stevenson, of Indiana, was not in favor of high feeding. He hoped the Convention would take such measures as to induce the people to adopt this breed of cattle (Shorthorns) everywhere. To induce them to do that, they must believe that they can live upon our prairies and upon our blue-grass fields—that they can live as other cattle live and not deteriorate.

We think that the better plan is to ascertain the truth, and let people know it. It seems

somewhat strange to us that any Western farmer living where corn is so abundant and cheap, should be afraid to keep a breed of animals that require, when young, more or less corn in winter to keep them growing as rapidly as they are capable of growing. We have by careful breeding and feeding, given them this quality of rapid growth. This is what constitutes their great value—the capacity of appropriating a large amount of nutriment and converting it into a large amount of choice meat.

WHAT IS SAID OF BUTTER.—When a wholesale dealer is questioned as to the proportion of really fine butter he receives in his consignments, he replies about five per cent. A larger proportion than this comes to market as grease. The grocer will tell you that of all his stock good butter is the most difficult to procure, and costs him most time and trouble to select. We know there is no good reason why this should be so. Here and there scattered widely apart throughout the country we know farmers who make excellent butter, which would be classed first quality in the market, and next door to those are neighbors who make trash unfit for food. On the counters of country stores may any day be seen rolls of butter most widely different in color, flavor, and texture. One farmer is careful and cleanly, his wife keeps her dairy sweet and her pails and pans perfectly pure; another keeps a foul stable, milks in an uncleanly fashion, has musty feed and foul water for his cows, while his wife is equally careless in her dairy. How can the butter in these two cases be other than widely different in quality and value?

Pearl-Fishing in Vermont.

BY MRS. R. E. ROBINSON.

The pearl-producing, fresh-water clam, or muscle (*Unio*), is found in some Western streams though few pearls have yet been discovered in them. It seems that in this country fresh-water pearls are found most abundantly in the Winoski River in Vermont, not far from its source, and in its small tributaries. Within a few years much attention has been given to hunting them, and vast quantities of the molluscs have been destroyed by the merciless pearl-hunters, yet they are still found in great numbers.

The shell from which the sketch (fig. 1) was made, is five inches long; two wide; one and a half thick. It is covered with a lightish-brown skin, that upon drying and exposure to the air becomes much darker. The animal within the shell is a light pink or salmon color. The interior of the shell is pearly and iridescent, with a brownish-yellow patch near the hinge.

The clams were once found in any part of the river, but they have been hunted so much they are now usually found in deep water alone. Pearls are more frequently found in clams that live on stony or gravelly bottoms, as a grain of sand or some small foreign substance that has entered the shell forms the nucleus around which the layers of pearl are made, taking an unknown number of years to form even a small pearl. Sometimes they are taken from riverbeds of clay and mud. It is said clams must be seven years old before they begin to form a pearl.

The clams move slowly from place to place, crawling edgewise, leaving a groove-like track. The small end of the clam sticks in the bottom of the stream with the large end out and open,



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PEARL-FISHING IN THE WINOOSKI.—*Drawn and Engraved for the American Agriculturist.*

out of this a portion of the animal protrudes, but at the least disturbance withdraws, and the shell closes so tight it can not be opened without being cut at both ends. When open, the pearl if any, is at once seen in the small end, imbedded in the "flap."

The instruments necessary for "pearl-hunting" as it is commonly called, are an iron rod (fig. 2) flattened at one end, with barbs cut in it

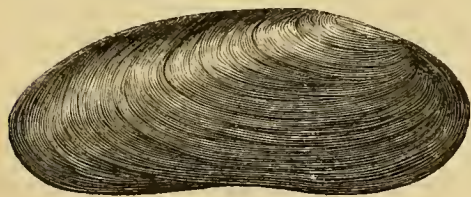


Fig. 1.—PEARL-BEARING UNIO.

to draw out the clams, a handled basket to carry them in, a stout knife to open the shells, and a box of fine cotton in which to put the pearls. Happy is the lucky fisherman who does not return home after days of toil, with this box as void of pearls as when he started. In the Winooski, the water is so dark that an umbrella is

of service, especially in deep water and when the sun shines.

Sometimes the fisherman wears high rubber boots, oftener he wades into the river with bare feet and his breeches rolled high, with his basket on arm and spear in hand. He thrusts his spear into any open shell he may see on the bottom, which immediately closes, when he pulls it out, puts it in his basket, and looks for another. When satisfied with the number he has got, he carries them to the bank, where he sits down and opens them. The experienced hunter can usually tell before opening if there is a pearl inside, as only the deformed shells contain one. Often thousands of shells are opened and the inmates destroyed without obtaining a single pearl of value. Sometimes brownish ones, lustreless, and of no value are found. The white and rose-colored ones alone have the beautiful light and desirable lustre.

Probably more depends upon luck than skill. C. H. Stevens, Esq., of East Montpelier, who gave me much of the above information, is one of the most successful pearl-fishers of that region, and the one who some years ago found the largest

pearl that has been discovered in the United States. He says: "The large pearl I found was in two feet of water where it ran swift. It was in the first shell I took out, and I could see the place close to it where some one else had taken out another. The pearl is $\frac{5}{8}$ of an inch in diameter, round as a ball, and of fine lustre. It is now owned by a gentleman in New York, who values it among the thousands. It was nearly in the middle of the clam by the hinge, the only one I ever heard of being found there."



Fig. 2.—PEARL-HUNTERS' SPEAR.

For successful hunting a still day is necessary, as a small ripple on deep water will hide the clams. In shallow water it is not so important.

Upon such a day, during a "pearl-fever," it is not uncommon to see numbers of men and boys, and sometimes women, standing in the Winooski gathering the clams, or seated on the bank opening them. In warm weather sometimes, such numbers of clams are destroyed the air is tainted with their decay for a long distance.

Ginseng.

Every now and then there is an excitement about Ginseng, arising from reports of great prices received for the article. We have had several letters concerning it, especially asking

is a universal panacea, not only curing all bodily ills, but clears the judgment and gives vigor to old age. Those who have investigated the matter regard its attributed effects wholly due to the imagination; and though the root produced in this country is not, as the Chinese

usually staminate only. The showy portion, an open sheath, spreads away from the flowers, while in the cultivated Calla it quite encircles and hides them. In our native plant this sheath or envelope, which is botanically called a *spathe*, is white upon the upper surface but green upon



GINSENG.—(*Aralia quinquefolia*.)

about its cultivation. Ginseng is botanically *Aralia quinquefolia* (formerly called *Panax*), and belongs in the same family with the European Ivy. The fleshy root, which is from four to nine inches long, throws up a simple stem about a foot high, which bears at the top three leaves which have usually five divisions. The flowers are inconspicuous, greenish white, and in a small umbel; these are succeeded by bright red, berry-like fruits. The engraving shows the different parts very much reduced. Ginseng is found throughout the temperate portions of the country, but owing to persistent digging it is very rare except in the sparsely settled portions of the West. It flourishes in rich, cool woods, especially upon hill-sides, and as it is not found growing in other situations it is probable that it could not be successfully cultivated. Still, the experiment is worth making, as there are many plants that are naturally found only in very wet places that flourish perfectly well in ordinary garden soil. The root of Ginseng has a sweetish and somewhat pleasant aromatic taste, and is not considered to possess any important medicinal properties. Its commercial value is due to the demand for it in the Chinese market. There is a very similar plant in China, the true "*Sching seng*," which is in that country so highly esteemed that the district in which it grows is under government surveillance. In the Chinese *materia medica* Ginseng

have found out, the "Original Jacobs," it is no doubt just as good, being quite as harmless. It is one of those articles upon which speculators have made and have lost large sums, as the market in China is said to be very fluctuating.

A Native Calla.

Almost every one knows what is popularly called the "Calla Lily," or "Lily of the Nile," one of our most popular and easily cultivated house plants. It was formerly called *Calla Æthiopica*, but for botanical reasons it is now put in a different genus, and is properly *Richardia*, though it popularly retains its old name of Calla, which is an ancient name the meaning of which is not known. There is to be found in the bogs and swamps of the colder parts of the country a native species—*Calla palustris*—which, if not a very showy plant, is an interesting one. It shows much more plainly than the cultivated Calla does that what popularly passes for a flower is not a flower at all, but only an appendage to the flower cluster. The engraving shows our native species (which is also found in Europe) about half the natural size. Here it is plainly seen that the flowers are crowded together upon a short stem or *spadix*. The flowers at the lower part of the cluster are perfect, while the upper ones are



MARSH CALLA.—(*Calla palustris*.)

the under side; but in the African one it is white and petal-like on both sides. Our native Calla bears a cluster of red berries, each of which contains a few seeds. It can probably be cultivated in ordinary garden soil, but our only attempt, having been made in an unusually dry season, failed. It makes an excellent plant for an aquarian, being quite at home when its roots are submerged.

Marketing Produce—Asparagus—Strawberries.

BY J. R. HELFRICH.

[But few not familiar with the ways of city markets are aware how much what seem to be trifles have to do with the sale of produce. A grower may take every pains in raising his crop, but if he sends his articles to market in a careless manner his returns will be less than those of one who takes less pains in cultivating, and devotes more to preparing for market. There is nothing connected with market-gardening of more importance than the proper packing for transportation, and we are sure that this article, and others that may follow, prepared by Mr. J. R. Helfrich, 92 Barclay St., one of our most experienced commission merchants, will be of interest and value to many readers.—ED.]

CUTTING AND PACKING ASPARAGUS.

The earliest asparagus always commands the highest price, therefore it is best to commence cutting as soon as practicable. Early in the season, when it is scarce, it will sell with a larger proportion of white stalk than it will later. When it is plentier customers demand that a greater length of stalk shall be green.

It will hasten the growth of the asparagus to run a plow, as soon as the frost is out, as near to the rows as practicable. Throw a furrow away from the plants upon each side, taking care not to wound the crowns. This will let the air and heat into the crowns and start them early.

The best knife for cutting asparagus is an ordinary 8-inch butcher-knife with the point cut square off, leaving the end about an inch and a quarter wide; this should be ground sharp like a chisel.

In cutting for very early market, cut the sprouts when they are three inches above ground; as the season advances let it grow to four or five inches. In cutting cut clean, taking all the "cuttings" or small sprouts, as well as the large ones. If the weak and spindling shoots are allowed to grow they will take away the strength from the roots.

To cut, take the sprout in one hand and run the knife down close along side of it to the proper depth, move the handle away from the stalk and shove the knife down so as to sever the stalk with a tapering cut. Care must be taken not to wound the young sprouts which are coming up all around the crown. After cutting, the asparagus should be removed out of the sun as soon as possible and be put into a tub of clean water and gently stirred to wash it, after which it is laid out to drain off the water. Use none but clear fresh water, as dirty water will discolor the sprouts, and if the water has been used the previous day it will be sour and hasten fermentation of the heads. In bunching all small shoots as well as those that have crooked heads are to be thrown out. Machines of cast-iron are now used for bunching which allow the work to be done rapidly and form a bunch of uniform size; this is a matter of importance, as asparagus is of more ready sale and commands a better price if the bunches are uniform in size. The bunches should be about 8 inches long when "budded" or cut off at the butt, and the heads all even. There should be two ties, one placed about two inches from either end. The bunch must be tied so tightly that it will not loosen in handling after it has reached the market and dried out somewhat. Bass matting is the best material for ties, this and the bunching-machines being furnished by us, and we suppose by other dealers. If the bunches are to be kept over night before packing, dip the butts in clean water and stand them on end on a cold cellar bottom or upon grass or hay that has been thoroughly wet; do not sprinkle or wet the crowns or the green portions of the sprouts.

In handling the asparagus every care should be taken not to bruise the crowns or heads and to keep the crowns cool, as the gummy juice of these soon heats and spoils the whole.

In packing use crates that are 10 inches high, and if shipping from a distance put some thoroughly wet grass or moss in the bottom of the crate, stand the bunches on end, butt down, and press them so tightly together that they can not move or shift in handling. The crates should have a tight bottom and ends; the sides may be tight half-way up, the rest of the sides and

the tops are slatted. This keeps the butts moist, and the tops dry and cool. Nail corner-pieces on the crates and cleats on the top at each end in order to keep the crates apart during shipment and allow of a circulation of air. Mark the number of bunches of prime and culls on each crate.

STRAWBERRIES.

Strawberry-culture is now receiving at the hands of fruit-growers greater attention than that of any other of the small fruits. Leaving the discussion of varieties, soils, and planting, to the journals, we wish to give some suggestions in regard to picking, packing, shipping, etc., which if properly observed will be of great advantage to both shipper and dealer.

The crates and packages should be neat, clean, and uniform, as very much depends upon making a good show to attract the eye of the buyer. This is an important matter, as neat, tidy, uniform crates and baskets improve the looks of the fruit, and that thus packed will sell in preference to that in the old, ungainly, and ill-shaped packages. Our first-class dealers do not like to have rough-looking parcels about their places, hence such are the last sold and consequently at reduced prices. The crates and baskets must be well-ventilated, as fruit that has sufficient circulation of air through it to keep it cool, will keep longer and be brighter than that in close packages. The round-top ventilated cup is decidedly the best in use and is being generally adopted by our most experienced fruit-growers. The crates should be slatted or otherwise ventilated, and have angle-pieces nailed on each corner, extending two inches each way, and one across each end upon the bottom. These pieces, which should be of half-inch stuff, preserve a space between the crates so that during shipment there will be a circulation of air all around them. Crates that are bound with strips of iron, when placed together in the cars or on the boats lie so close together that there is no ventilation and the fruit is spoiled. Crates containing 45 or 60 pints are the most desirable size to use. For quarts, 24 or 36 crates are large enough. When too large the crates are so heavy that the fruit is liable to be bruised by loading and unloading. The old-fashioned tight chests with tight square boxes are entirely unfit for shipping fruit and should be discarded. We advise all shippers to procure at once round-top ventilated cups or baskets and open crates, as the difference in price received for the fruit will often, in one shipment, justify the outlay.

In picking, too much care can not be taken in regard to the point of ripeness. The fruit should not be too ripe, but firm and hard. If to be sold within twelve hours after picking it can be of full color and ripe, but *not soft*. If it is to be a longer time than this on the way it should not be so ripe when picked, *i. e.*, the berry should not be full colored but a little lighter on the under side, as it will ripen on the way. Each picker is to be provided with a tray or box made of light material which will hold four to eight baskets or cups. The pickers must be cautioned to pick clean every day, as if it is not picked regularly some of the fruit will become too soft, and if these are mixed with the hard berries they will mash and spoil the whole. A single over-ripe berry will spoil a whole basket. When the baskets are filled they are to be carried to the shade to cool, or to the packing-shed to be assorted and arranged for packing. In assorting, every unripe and every soft berry must be thrown out, and the baskets or cups be well

filled. The fruit should be assorted as much as possible in picking so as to avoid any more handling than is necessary. Small and inferior berries should be put in cups by themselves and packed in separate crates, which are to be marked "seconds," with chalk. Put no leaves in the bottom of the cups. Before packing set the fruit in the shade, where there is a free circulation of air, so that it may be thoroughly cooled off. In finishing off the cups turn the stem end of the berries down so as to hide the stem as much as possible. If the berries are sandy or soiled, as they frequently are after a heavy rain, put them up as such, and do not face the crate off with clean and fair berries. The "facing" or "topping" of fruit practiced by inexperienced growers is pernicious, and is one of the greatest difficulties the trade have to contend with. It inspires distrust among buyers, and is often the means of injuring the sale of carefully selected fruit. A reputation for putting up good fruit when once established is invaluable to the grower, and can not be too highly appreciated, as buyers learn the marks and buy accordingly.

Have each crate well marked on each end with a card upon which is the commission merchant's name in large distinct letters, in order to insure the return of empties by buyer. Have also the shipper's name and station in full on each end to prevent errors and facilitate the return of empty packages. The large dealers furnish shipping-cards and pasters free of charge to customers, and stencil-plates when ordered.

A Lady's Experience with Roses.

Mrs. C. E. S., Baltimore, Md., sends the following:

For the benefit of the many amateur florists among your readers, and to ventilate the delight over my success in rose culture, I beg the favor of a small space.

Two years since I married, and secured a house with the nicest bit of a garden attached of about 80 x 18 feet. On the advent of spring, I began to improve this heretofore neglected strip, rising at five o'clock in the morning and working until seven. To illustrate my utter ignorance of gardening at this time, I *planted* the seed of the Petunia, Dianthus, Pansy, Philox, etc., *over two inches deep!* The labor I performed in laying out beds, borders, walks, etc., and my neighbors complimented my hobby as "neat and tasty."

After a while, I consulted Henderson, Vick, Buist, and other books, and learned how to sow seed and cultivate plants, and succeeded to my satisfaction.

But I love the Rose! Finding prices too far above my means to secure all the varieties I would like to possess, I bought a treatise on Rose-culture with a view of raising my own. After patiently going through this book, I got the idea. The author was quite learned, not only in roses, but botany in general, and Latin and Greek to a certain extent. He rather aimed to teach experienced florists, instead of amateurs to whom he specially addressed himself. Having no hot-house or other appliances recommended, I thought to do a little summer experimenting in my own way.

Last spring I procured a box 12 x 18 inches and three inches deep, and filled it nearly to the top with clean paving sand, into which I placed cuttings from my neighbors' best stocks, about fifteen in number. These were all quite young shoots, three to five inches long. The box was kept all through the summer in the most ex-

posed position in the garden, and was filled every morning with water, which kept the sand constantly and thoroughly wet. Excepting in two cases, they all lived nicely, and by the setting in of fall had roots two or more inches in length. I then potted them off singly, in sand, loam, and manure mixed, in three-inch pots. On the approach of winter, the pots were immersed to the tops in sand and covered over with brush, over which I placed a good layer of leaves and fresh horse-manure. Three weeks ago they were all exhumed, and only two of the pots found to be broken by the frost, whilst all the plants were as fresh and green (excepting the absence of leaves) as the day they were buried. Up to this time they have been exposed in a window facing south, and not one of them contains less than fifty leaves, and all have a fair prospect of budding within a fortnight.

I have learned more from an experience like the above than I gained in poring over a learned treatise. If any beginner can be benefited by it, he or she is doubly welcome.

Water-Cress Cultivation.

BY PETER HENDERSON.

When I wrote my work on Market-Gardening I must have passed over this plant too hastily, as I find more of my readers have asked to be further instructed in the matter of its cultivation than on that of any other vegetable. I have received three letters the past week, two from Maryland, and one from Virginia. In each instance the question is asked whether it is necessary to clear the sides of streams (intended for the planting of water-cress) from grass, shrubs, or weeds?

Water-cress can be best cultivated in places where the streams run through a level tract. Supposing the stream to be an average of a foot deep and six or eight feet wide running through a meadow, a good plan for cultivation is to make excavations laterally—say in beds 5 feet wide (with alleys between 5 feet), at a depth of say 8 inches, or at such a depth as to be flooded by the stream when it is of average depth or, when shallow, by damming it up so as to flood the beds.

The advantage of having the beds excavated at right-angles to the stream rather than parallel with it is, that in the event of freshets the crop is less liable to be washed away. The length and number of the beds excavated, must, of course, be determined by circumstances. Water-cress seeds germinate freely in earth when kept saturated; hence the beds when properly leveled and pulverized by digging and raking should be slightly flooded—enough to saturate the soil only until the seeds germinate—for, of course, if the beds were filled up with water the seeds would be washed off. After the seedlings have started so as to show green, the water may be gradually let on as they develop. Probably the best time of sowing the seed would be, for the latitude of New York, about the middle of August. When Water-cress is found growing naturally the beds can be made by setting the plants six or twelve inches apart each way. When the cultivation is once fairly begun there is no difficulty about forming new beds, as few plants grow more rapidly when proper conditions are present. If the crop is planted or sown the middle of August, it will have spread all over the beds by November. The streams being full in autumn the beds will be fully flooded so as to protect the plants during winter. It is always found wild growing best

in clear, shallow, slowly-running water with a sand or gravelly bottom—and as nature is always the surest guide to all successful cultivation, the nearer it can be imitated the better the success. I find it is one of the plants the culture of which is not very easy to give by writing, as so much must be determined by the circumstances of locality. Wherever a suitable stream is at command the experiment of growing Water-cress is worth trial, especially when we know that it, in many cases, pays for a given area six or eight times more than any other vegetable cultivated, provided it can be sold in the markets of New York or Philadelphia.

The Winter Nelis.

This old favorite maintains its high reputation as an amateur fruit, and should have a place in any list of a dozen pear-trees for the garden. The illustration gives a very correct representation of the pear. It is thus described by Downing: "Fruit of medium size, or usually a little below it, roundish, obovate, narrowed in near the stalk. Skin yellowish-green at maturity, dotted with gray russet, and a good deal covered with russet patches and streaks, especially on the sunny side. Stalk an inch and a half long, bent, and planted in a narrow cavity. Calyx open, with stiff, short divisions, placed in a shallow basin. Flesh yellowish-white, fine-grained, buttery, and very melting, abounding with juice, of a rich, saccharine, aromatic flavor. In perfection in December, and keeps until the middle of January."

Along the shores of the Sound in Connecticut this pear is a solid russet, and we have never seen a specimen of any other color. The wind-falls ripen in November. Those remaining upon the tree until that time may be barreled on a dry, sunny day, headed up tight, placed on the north side of a fence or building until there is danger of freezing, and then removed to a cool cellar. We have kept ours this season in the same barrels with the Vicar of Winkfield, and they have kept quite as well as that standard winter variety. At the middle of January they were quite as hard, without any evidence of decay among them. The temperature of the cellar had been regulated by a thermometer, and kept between 35° and 40°, or as near 40° as possible. By bringing a few of them into a warm room, they ripened up readily as they were wanted, and we had the pleasures of the October fruit-yard in mid-winter. We want now, more than all things else in pear-culture, good winter varieties, that will take the place of the fall fruits when they are gone. Thus far the number is very limited. The Winter Nelis is entirely satisfactory, good enough to please the most fastidious taste, and keeping with as much facility as a good winter apple. The fruit room in the cellar is entirely practicable, and within reach of every farmer who has a home of his own. It will be safe to plant or graft the Winter Nelis this spring.

CONNECTICUT.

The Grape-Vines.

The sudden shutting down of winter occurred before all our vines were pruned. We found upon resuming the work this spring that with many varieties, such as Eumelan and Iona, the wood, although not dead, had not the lively look proper to it. Wherever the vigor of the vines has been weakened, severe pruning is the only way in which to recover lost ground. If

vines start, fully rub out the majority of the buds and throw the strength into a few. Pruning before the leaves are well expanded will lead to bleeding; this is less injurious than is imagined, yet it is unpleasant, and if the buds are removed now the canes can be cut away later.

Forcing Lettuce in Greenhouses.

BY PETER HENDERSON.

One of the readers of the *Agriculturist* (J. C. S.) requests me to state if I can why some of his Lettuce plants become affected with a species of mildew or rust, which, beginning in the center of the plant, gradually spreads over the whole.—The disease referred to is not an uncommon one, and has of late years been quite troublesome in some sections, particularly during midwinter. I am not certain of the cause, and can offer no cure—except to advise that great care should be taken to have the plants grown freely, and without any sudden check by chilling or by the extremes of drouth or moisture. We find in the culture of plants under glass, that some species are particularly sensitive to such checks—some varieties of the Rose, for instance, if, when in a particular condition of growth, the temperature for a few hours is reduced from 65° to 40°, at night, or if a frosty south-east wind is allowed to play on the leaves for even ten minutes, or if allowed to dry so that the plant wilts, mildew will to a certainty be developed in twenty-four hours. The Verbena, Heliotrope, and Petunia are equally sensitive to ill-usage, only the trouble affecting these is of another character—when they get diseased or rusted. The microscope reveals the presence of an insect, which we presume is a consequence of the disease, just as when we find the *mildew* on the Rose. The microscope shows it to be a fungus, as beautifully developed as the Mushrooms or Toadstools—which are higher types of the same family. In both these instances it is probable that both these parasitical affections, the mildew on the Rose or this tiny crab-like insect that we find on the diseased Verbena, come only when the plant has become debilitated by disease. I am inclined to think that the Lettuce disease is also caused by some ill-usage at some period of its growth, for we find that it is rarely seen when the crop is grown in the open ground in spring or summer. The remedy suggested then when forcing is to prepare the plants carefully so that no sudden check is given—and also that the soil used on the benches be fresh, and the manure used be thoroughly rotted and well mixed through the soil. Fumigating with tobacco should also be done twice each week.

Flowers for Cutting.

Some one—we think it is Mr. Vick in his catalog—suggests that every gardener should have a bed from which every one is at liberty to cut flowers at will. The suggestion is an excellent one, and embodies what we have long practiced! One does not like to have his show-beds cut from by others, and does not like to have visitors go away empty-handed, and a reserve bed overcomes all difficulties. We put out a few Heliotropes, Rose-Geraniums, China and Tea-Roses, Carnations and other Pinks, and *Cuphea platycentra*, invaluable for its green as well as for flowers, then sow some mignonette, Sweet Alyssum—Candy-tuft—and if there is room some Sweet Peas, and there are always materials at hand for a choice bouquet.

The Codling-Moth.—Wier's Trap.

BY C. V. RILEY.

Resolved to test Wier's trap thoroughly, in comparison with other methods of allurements, I commenced as early as the first of May to prepare a number of trees as follows: 1st, with Wier's trap, screwed on in different positions; some trees having single traps, either on the north, south, east, or west sides, and placed at

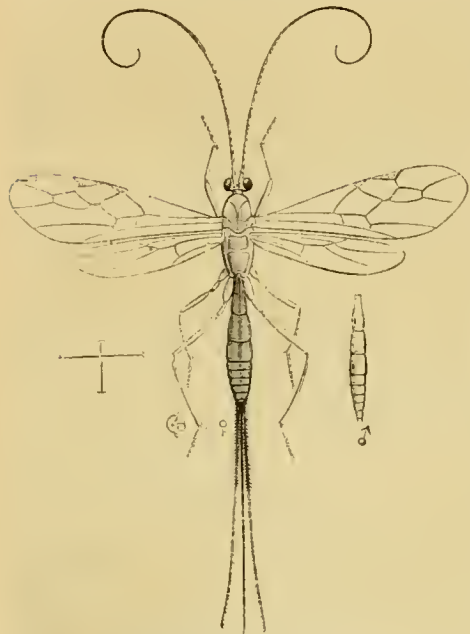


FIG. 2.—DELICATE LONG-STING.

different heights from the ground, and some having as many as three traps; 2d, strips of old sacks four inches wide, and lined on one side with pieces of lath tacked on transversely, and at such distance from each other that when brought around the tree they formed an almost complete wooden ring; 3d, bandages of various kinds of rag; 4th, hay ropes; 5th, paper bandages, made of the cheapest kind of straw-

with the detailed array of figures—may be thus summed up:

No Apple-worms were found until the 14th of June, and though many other insects had previously taken advantage of the shelter, *not a single Plum-Curculio was found*. While, therefore, there is no harm in having the bandages on as early as recommended last year, in ordinary seasons little, if anything, will be lost by waiting until the first of June. Where three of the Wier-traps were on the same tree, I obtained more worms than where there was but one; and where there was but one there was no difference in favor of position as regards direction or altitude, taking the season through. The lathed canvas encircling the tree secured, on an average, five times as many worms as any single Wier-trap. The rag, paper, and hay bandages allured almost as many, and either kind more than the single Wier-trap.

I hope therefore that the patentees have already realized the anticipated fortune from their invention; for, while I should be sorry to injure their chances in the least, truth compels me to state that, after a year's trial, I am not quite as favorably impressed with the usefulness of this shingle-trap as I was before trial, and am more thoroughly confirmed in the opinion expressed last year that, "notwithstanding all the theories of my friend Wier, it must always be inferior to any trap that encircles the tree." I do not wish to detract from its merits one jot, and where old shingles are abundant, and other material scarce, the former will still prove valuable for the reasons given a year ago, and Mr. Wier deserves our thanks for showing us how to use them.

Time, expense, and efficiency considered—and so far as one year's comparison will warrant conclusions—I place the different materials enumerated in the following order of merit:

1st. Paper bandages. Common straw wrapping-paper, 18 × 30, can be bought for 60 cts. per bundle. Each bundle contains 240 sheets, and each sheet, folded lengthwise thrice upon itself, will give us eight layers between two and three inches wide, and be of sufficient length to encircle most ordinary trees. It is easily drawn around the tree and fastened with a tack; and so cheap, that when the time comes to destroy the worms, the bandages containing them may be detached, piled in a heap and burned, and new ones attached in their places. If eight bandages are used to each tree during the season, the cost will be just two cents per tree, and the owner could well afford to treble the number of sheets, and keep three on each tree, either together or in different places.

2d. Rags. These have very much the same effect as paper, but are more costly, and difficult to get of the requisite length. Where they can be had cheaply, they may be detached from the tree and scalded with their contents.

3d. The Wier-trap used as recommended last year is perhaps the next most useful; but both cost and time required to destroy the worms are greater than in the first two methods.

4th. The lath belt is the very best of all traps so far as efficiency goes, but it is placed fourth on the list because of the greater cost and trouble of making. On the same kinds of trees (Early Harvest), and in the same orchard, I have taken with this belt, between June 15th and July 1st, as many as 68 and 99 larvæ and pupæ, against fourteen and twenty in the single Wier-trap.

5th. Hay-bands, on account of their greater inconvenience, I place last.

All these methods are good, and the orchard-ist will be guided in his choice by individual circumstances.

I wish to allude before closing to an apparently plausible theory advanced by Dr. J. S. Parker, of Ithaca, N. Y. In an article in the *Maine Farmer* for June 1st, 1872, in which nine-tenths of all the apples set in 1871 are said to have been either totally lost or greatly damaged, he suggests that the insect might be well nigh exterminated if, by united effort, we could forego one year's crop by knocking off all the young fruit. He fails to attach sufficient importance to the fact that the insect breeds in wild crabs, pears, peaches, and even plums.

PARASITES.

If we except a species of hair-snake, belong-



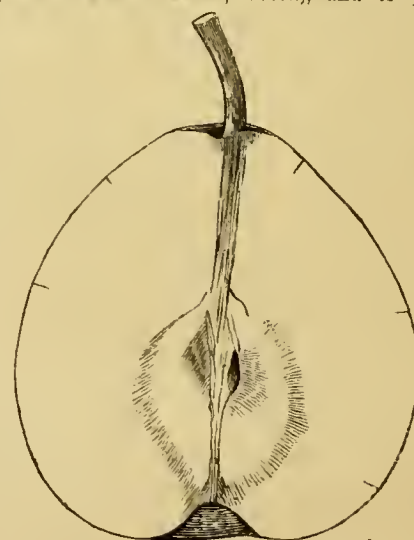
Fig. 1.—RING-LEGGED PIMPLA.

ing probably to the genus *Mermis*, and which Mr. P. H. Foster, of Babylon, N. Y., has found on two occasions infesting it (*Gardeners' Monthly*, May, 1872), no true parasite of the Apple-worm has ever been discovered in this country. I have this year discovered two. The first (fig. 1) may be called the Ring-legged Pimpla (*Pimpla annulipes*, Br.), and is of a black color. It eats its way out of the chrysalis and cocoon of the Codling-moth without having previously made any cocoon of its own. The second may be called the Delicate Long-sting (*Macrocentrus delicatus*, Cress.), and is pale



WINTER NELIS.—(See page 183.)

paper, folded several times, and in widths varying from three to six inches. In order to insure the utmost accuracy, these several traps were regularly examined every twelve days throughout the season, and a careful account kept of the worms or chrysalids found under each; and where it was a question as to the comparative merits of the different traps they were placed on trees of the same variety. The results of these experiments—not to waste space



WINTER NELIS, SECTION.

honey-yellow tinged with brown (fig. 2). The unfortunate Apple-worm is probably pierced by this species while yet in the fruit, as it always succumbs soon after forming its cocoon and before changing to chrysalis—the parasite forming a brown cocoon for itself within that of its victim. Whether the parasites here described had anything to do with the scarcity of Apple-worms, and the consequent large apple crop that was harvested in many parts of the country, it were useless to speculate.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

A Boiled Knife

Every experienced housekeeper knows that to keep the handles of knives out of hot water is one of the first lessons taught to the girls when washing dishes. Yet, from carelessness of servants or others, the handles do often get into hot water, and consequently the blades soon loosen and part company with the handle. Recently, a manufac-



A NEW KNIFE-HANDLE.

turer left a knife at this office, requesting that it be boiled as often as desired, asserting that the handle would remain firm under the treatment. The knife has stood the test. Hot water does not loosen it. Why it does not can be seen by the engraving, showing the interior of the handle and how the parts are so inseparably joined. The shank or "tang" of the blade when finished is put loosely into an opening made to receive it in the wooden handle. The two parts are then confined in a proper mold, and the opening is filled by running in a melted alloy of tin and antimony. This surrounds notches made in the shank, passes through openings in the handle and forms rivets, and also forms a jaw or clamp at the top of the shank which embraces the lower part of the blade, and also laps over and firmly holds the upper end of the handle. There is no way of separating the parts short of breaking the handle. Many different styles of these knives are made, to suit different tastes. They appear to be the "knife for the million."

What to Do with Bleeding Wounds.

BY DR. J. T. ROTHROCK.

Any one may be called upon to stop the flow of blood in an injured person, and it is well that every one should know how to do it.

The blood as it flows from a cut surface is of two colors, and comes from two different sources. First, that from the veins is dark, in color not unlike some of the darker cherries, and comes in one continuous stream; that from the arteries is brighter red, and leaps out in jets and sprits, each pulsation of the heart producing one of these jets of blood. The stream from an artery may be large enough to drain the blood out of the body in fifteen minutes, and may shoot out several feet from the body of a vigorous man, or it may be so small as to be unable to break out into a distinct jet, and only bubble forth with each beat of the heart. Between these two degrees there may be every variation in quantity. Of course, the more profuse the bleeding, the more alarming it is.

All that an unskilled person can be expected to do in arresting bleeding is by well-managed compression. Leave twisting of the arteries, or tying them, or closing their cavity by a pin to the surgeon. Most of these operations require the preliminary use of the knife. I may say, however, that when the end of a bleeding vessel can be seen and grasped by a pair of small pincers, the doctors still do just what good old Ambrose Paré did when he "was inspired by God with a good thought"—he took "a silk thread and tied it tightly around the bleeding vessel." And so ever after the horrible burning with hot irons and with boiling oil, the stuffing of the wound with drugs to stanch the flow of blood could be dispensed with.

Wounds made with a sharp-edged instrument bleed most freely; those bruised and torn less so. Sometimes the mere position of a limb may stop even arterial bleeding, providing it is not from a

large artery. For instance, an injury at the wrist possibly may give no alarming flow of blood while the arm is elevated, or one of the ankle if the leg is raised high as possible—so that the blood in the arteries must run up-hill. Application of cold to the injury—ice or snow—may remove the cause of fear if the accident is not of serious character. So, too, bleeding long continued may stop of itself, providing the exhaustion so induced render the heart unable to force blood through the vessels and out at their open ends.

In adapting pressure to the stoppage of any given current of blood, we always endeavor to find bone to press against; affording thus a solid basis, it makes the pressure the more efficient, and does it with less pain to the other portions included in our constricting bandage.

We will begin with the head. There are a number of points at which an artery may be cut which will cause alarming (to the bystanders) though usually not dangerous bleeding. Just before the ear is one such spot; just behind it is another. It so happens that we have in either of these places the solid bone underneath, and pressure here is generally effectual. [To illustrate the subject and show where to make compression, we borrow a figure, showing the arrangement of the muscles, from J. Dorman Steele's "Fourteen Weeks in Human Physiology," a clever work recently published by A. S. Barnes & Co.—Ed.] Suppose, as in the figure, at a spot there covered by the bandage, in front of the ear, we find a cut needing our care. Take a bandage six yards long and two inches wide. Roll it from each end, as represented in figure 2, so that on either side of the center there shall be an equal length rolled up. This is what surgeons call a "double-headed bandage." Put the center under the chin and, supposing the injury to be on the left side, bring one head of the bandage up to the cut on that side from the chin; carry the other head from the chin up over the cheek on the right side, across the top of the head, down the left side to the cut; then pass the lower end under the upper, carry the former backward around the head, and take the upper end forward, and so around the head to meet and pass the first end. This, as you will see from the figure, makes a sort of knot immediately over the cut. Put a thick pad of muslin tightly folded under this knot, and as you draw upon the ends of the bandage it will press the artery down solidly against the bone.



Fig. 1.—HOW TO COMPRESS ARTERIES.

Continue the turns of the bandage in the horizontal direction until they again meet over the cut, change the direction again so as to have the bandage run around the head vertically, and immediately over the first turn you took. And so continue until you have made a sufficient number of knots to exert firm pressure. Draw the bandage tightly at each turn, and when all is on sew or pin the ends. You have now a "knotted bandage." This general



Fig. 2.—BANDAGE.

form of bandage will act well at almost any point on the head, and with a little effort at learning any one can master its apparent

difficulties in a few minutes. Suppose we have a vein bleeding from that most alarming of positions—i. e., the side of the neck. The blood flows in one continuous stream. Pressure here may even stop this one, and, as in all in-

jured veins, it should be exerted either immediately over the injury or on the farther side of it—that is, on the side most remote from the heart. Surgeons sometimes even in these days do open the jugular vein, and after allowing what blood they wish to escape, close the opening and prevent further loss of blood by pressure. In the jugular vein, however, we must bear in mind one thing more. In it exists the special danger of air being carried from the end of the opening nearest the heart into the cavities of the heart. The size of the vessel and its nearness to that central organ readily account for the unusual danger here. Hence, then, whilst we are exerting pressure with our fingers, or fingers and a compress of muslin, over the injury, and at its further edge, pressure should also be applied on the other side to prevent admission of air, or we may hear a peculiar, never-to-be-forgotten gurgle, and find a little later that our patient has gone. Even if the blood come from an artery in the neck the effect of compression in the same way might be tried; but usually nothing short of an operation, and often a most serious one, by the surgeon can be of any avail. Indeed, life may ebb out with the flowing blood before medical help reaches the spot.

(TO BE CONTINUED.)

Rag-Bags.

"Are you housekeeper enough to keep a rag-bag?" asked one of the "lights of literature" (whom the poet Whittier compliments as a "capital housekeeper" herself), as she gathered some scraps she had been scattering upon my carpet.

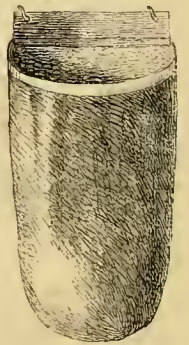
"I certainly should not be much of a housekeeper without a rag-bag," I answered, as I took her pieces and carried them to the calico bag mother gave me when I began housekeeping.

Not keep a rag-bag! Why, then, what becomes of all the little scraps and garments worn out past all repairing? One woman buys all her sewing materials—needles, thread, silk, tape, etc.—with the savings of her rag-bag. Many of us trade off our rags to peddlers of tin-ware, and so keep good our stock of pans, dippers, and basins.

Sometimes it seems best to have several of these bags; one for white rags, one for colored-cotton and linen rags, and another for woolen scraps. It is well to have also a large bag (a paper flour-bag if you please) in a convenient place to receive torn and crumpled papers. In some parts of the country it does not pay to keep white and colored rags separate, as one gets no more for the white rags than for mixed. In other places, white rags command a much better price than mixed ones.

Persons who make rag-carpets would do well to put every rag picked up which would work into a carpet into some receptacle devoted to miscellaneous carpet-rags. These would help toward a carpet faster than one might suppose, and if they were stripped up at the time of putting away, a carpet would soon be "well begun;" and "well begun is half done."

The rag-bag should hang in some near and convenient place. Mother's always hung in the kitchen stairway, and I have followed her example. A closet opening from the sitting-room or kitchen is a suitable place for the rag-bag. When this bag is full it is heavy, and should be hung from two nails. A doubled piece of cloth five or six inches long sewed upon one side of the top of the bag, with two button-holes (see diagram) for hanging it upon two separate nails, gives a firm bag that will not be likely to tear away from the nail. When you get a good calico rag-bag of this description you will not be likely to throw it in with the rags when you sell them. Many women use only old bags which they do not care to keep back when



RAG-BAG.

disposing of their contents. But there is great comfort in a strong, tidy, well-hung rag-bag.

A smaller, ornamental scrap-bag hanging near the sewing-machine is a great convenience. This can be emptied into the larger bag every day or every week.

Bags for different kinds of pieces—one for pieces of worsted, one for unbleached cotton, one for bleached cotton, one for linen pieces, one for scraps of silk, one for bits of velvet—all help toward order and comfort in housekeeping. These may be large or small, as needed, and may be as tastily made as you please. They can be laid together, labeled if you like, in drawers or trunks, or hung in rows in your closet. Crocheted cotton bags are much in vogue; but, dear girls and women, run up gingham and delaine and calico bags instead, I pray you, and give the time stolen from crocheting to something that will yield a mental or physical gain. Better play ball, or climb the hills, or read history and philosophy, than bend over patch-work embroidery or crocheting when you could be employing yourself in a more healthy manner. So much for rag-bags. AUNT JANE.

Home Topics.

BY FAITH ROCHESTER.

THE RECIPE-BOOK.—The public seemed taken by surprise when Marion Harland, the story-writer, published her "Common-Sense in the Household." What could she know about housekeeping? Yet her recipe-book is probably the most popular one now in use. It is a great mistake to suppose that a woman who is a genius in practical cookery is the best person to instruct a novice. Experience is a good thing if good common-sense goes with it; you can find women who have been engaged in cooking daily for a score of years, but who do everything in about the poorest way possible.

Just before I was about to assume the care of my mother's housekeeping for several weeks, I hunted up a recipe-book in a city where I was waiting half-an-hour for a railroad train. I selected one written by a "practical housekeeper" of twenty-five years' experience. The author said she was induced to make the book because of a conviction that a recipe-book written by a practical housekeeper was much needed.

But I quickly quarreled with this recipe-book. I had made bread pretty successfully with my mother at my elbow, but when I was left alone all my fancied skill was gone, and I wanted help. In vain did I seek it from my new book. It said, "The day of hop-yeast has gone by," and taught how to make bread only with water-risings!—and that in such vague terms that no novice could hope for success in following them, unless by pure "luck." When I wanted to prepare beefsteak for the table she only told me how to fry it!

Miss Beecher's Recipe-Book has proved very helpful to many young housekeepers. In some respects it seems rather behind the times (I write with one beside me published in 1864. A new edition, altered and improved, was promised lately, but I have not heard of its publication). There is much general information about marketing, cutting up and preserving meat, remarks about healthful food and drink, convenient utensils, care of the sick, etc.

Mrs. Cornelius's Recipe-Book is much liked by many. I have not used it. There are others in common use, but none seems to meet with such general commendation as Marion Harland's. "Common-Sense in the Household" is its name. Its cheerful, chatty style is quite "taking." I see that a "kitchen edition" has been published, with strong oiled covers, and with blank pages for copying recipes. Get this edition by all means if you purchase a copy. You will find that the author did not know everything, any more than we do.

In her directions for making "bread-sponge" (plain) she gives the ingredients thus: "One quart of warm water; six table-spoonfuls of baker's-yeast; two table-spoonfuls of lard; two table-spoonfuls of white sugar; one teaspoonful of soda;

flour to make a soft batter." I can not help shaking my head over the lard and the soda. The very best bread I have ever tasted has been made every time (I am thinking now of three different house-keepers each of whom makes *perfect* bread) without either of these ingredients, and it has been so sweet in its own sweetness as to need no sugar. But they mixed with new milk, I must confess. If the yeast is really good, I can see no possible use in putting in soda, unless the presence of the sugar is pretty sure to cause acidity. Better leave out both, and secure sweetness by greater care.

Other criticisms might be made, but it is not worth while. I am glad to have the book, and it is consulted here almost daily. It would be still more useful to those who do much fancy cookery. Yet there is no lack in the more practical departments. The author does not take it for granted that her readers already have "judgment," but gives very plain directions about putting things together, etc.

"The Health-Reformer's Cook-Book," by Mrs. Lucretia Jackson, is very sensible, though very small. It gives a good and pleasing variety of recipes, which one may follow without conscientious scruples about doing injury to her family.

LOOK OUT FOR COMFORT IN HOT WEATHER.—Is there a piazza or porch over at least one of your doors? No? Can not you supply the lack immediately? Piazzas are more needed than parlors in summer. Women need more fresh air and sunshine. The more we get of it the more we want; but we sometimes get so in the habit of stepping round and round in an in-door treadmill, that we almost lose the instinct for light and air. Almost all of our sewing ought to be done on the piazza when the weather is bright and the sun is right. If this were carried out the world would gain in neighborliness as well as in good health. We ought to have more low and easy benches under the shade-trees, and some of us should suggest to our "men folks" the need of more trees. We can carry out cushions when we need them.

The best place to take a nap on a warm summer day is in a hammock swung up in the shade somewhere out of doors. Hammocks of different kinds can be purchased in most cities for a few dollars each. They are especially desirable for invalids; but we should probably have fewer invalids if hammocks were more used by hard-working people who need an hour of quiet out-door rest every summer day.

ABOUT MAKING CAKE.—Success in this art depends much upon the method of putting the ingredients together. In the first place, you must have good materials—nice flour, fresh eggs, good sugar or molasses, and good butter. No flavoring will atone for the use of rancid butter. Beat the eggs thoroughly, keeping them as cool as possible. The nicest cakes are made by beating the yolks and whites separately. In that case beat the whites upon a large plate, and do not give over until you can cut the froth in pieces with a knife. Beat the yolks in an earthen bowl until they cease to foam and begin to look a little thick. The whites are the last thing to put in your cake, and keep them cool while they wait. For my part, I seldom beat the whites and yolks separately, for only the very plain kinds of cake form a part of our every-day fare; but the plainest cake is excellent if carefully made and baked, and if of good materials.

Never use unsifted flour if you would have cake, or anything else, as *light* as possible. When Graham flour is used for cake, it should be sifted, and the bran can be mixed again with the sifted flour. If baking-powder is used it should be mixed with the flour and sifted with it. The more thoroughly these are mixed together before putting with the other ingredients of the cake, the more fine and even will be the pores of the cake when done.

Roll the sugar with a rolling-pin if it is lumpy in the least. Warm the butter a little if it is hard, but do not melt it.

The butter and sugar go together first, and should be stirred or beaten—"with a silver or wooden spoon," we are always told. I wonder if there is

any sense in this direction. I mean to test it some day; but I usually stir with a silver-(plated!) spoon. Stir the butter and sugar to a cream considerably lighter colored than it appeared when you began to beat it. Then add the eggs—only the yolks at this time if you beat the whites and yolks separately. In the latter case, keep the whites cool, and put them into the cake the very last thing. Beat the eggs in with the sugar and butter thoroughly before going further. Then you may put in the milk, with the soda, if "soda and cream-of-tartar" form a part of the recipe. If flavoring or spices are used, they come next in order; then the flour, mixed already with baking-powder or with cream-of-tartar. If the whites of eggs are waiting, they must be thoroughly stirred in at the last moment. When all is well mixed together it should go into an oven that is "just right" for it.

Poor little novice! How can you "use judgment" if you have none to use? Well, practice on the plainest cakes while you cultivate "judgment." The cake should rise to its full height before the crust begins to harden. If you fear that the oven is too hot, slip a grate under the cake (if it stands upon the bottom), and cover the top with a paper. You can turn the damper so that no more heat will go into the oven for a few minutes, if you sit close by to turn the damper back at the right moment. If the oven cools suddenly, by an open door or any other cause, before the cake is done, the cake may fall.

To tell when the cake is done, pierce it with a clean, fine straw (one broken from a clean broom is best) in the thickest part, and if nothing sticks to it the cake is done.

Last summer I heard a housekeeper boasting that she never used recipes, and she was a woman who generally has "good luck" with her baking, I presume. That is, she seldom makes an absolute failure, but she quite as seldom reaches any high point of attainment. It often becomes necessary for us to vary a recipe in some respect if we use it at all. At least, it is so in the country, where we depend upon our own hens for eggs, and our own cows for butter and milk. This can be done safely if a few general principles are remembered.

Eggs are not *necessary* to make light cake. With baking-powder (seldom more than a teaspoonful for a single loaf), or with soda and cream-of-tartar exactly measured (always exactly half as much soda as cream-of-tartar), lightness may be insured, with reasonable care in other respects.

That the cake may be tender (or "short"), cream or butter becomes essential. New milk will answer for shortening if the cake is to be used with cream or canned-fruit dressing for a dessert. Many kinds of cake that are sweet to the palate are positively wicked to the stomach, they are so saturated with "grease." A table-spoonful of butter with half a cup of milk is really enough shortening to make any single moderate-sized loaf of cake "tender."

That the cake may be sweet, we use sugar or molasses, or both together. To get some desired flavor we use spices or extracts in small quantities. I have heard persons of weak digestion complain of the cloves or the cinnamon or nutmeg used in cake. Strong flavoring seems to me as vulgar as the use of strong perfumes. They are not *necessary* to good cake, and should be used with delicacy.

It is the safest way, especially for the inexperienced, to follow good recipes accurately, but a person who has some knowledge of the chemistry of cooking may vary these or invent others without much risk of failure. In saying this I do not mean to justify the old loose way of putting things together pretty much as it happens, "a little" of this and "a pinch" of that, without much idea of how it will all "turn out."

Steamed Corn-Bread.—By Mrs. C. W.

B.—One quart corn-meal; one pint flour; one quart sour milk; one teaspoon salt; one teaspoon soda; half-cup molasses. Mix well. Steam three hours. This is very nice for dinner at any time, particularly with pork or sausages.

BOYS & GIRLS' COLUMNS.

The Menagerie Prizes.

If you have read about "Our Menagerie," you will have noticed that some words are printed in *Italics*. There are fifteen of these words, and these form the subject of the prize. Ten prizes will be given—five to boys and five to girls—for the best articles written upon these words. They are mostly words not in use in common conversation, as they mainly belong to natural history, but they are words that every intelligent person should know all about, and the looking of them up, and the thoughts they may suggest, will be very useful to you, even if you do not win a prize. Of course you will have to consult dictionaries and other books, and ask questions of older people. I do not care how you get the information, if you only come at it somehow and write it down, as in that case you will probably never forget it. Take these words as texts, and write down all that they suggest to you. I give the words and some hints to help you.

1. *Amphibious*.—The meaning of this has already been given. What animals not enumerated in "Our Menagerie" are amphibious? What shell-bearing animals?

2. *Mammals*.—What are these? What animals are not mammals? What animals that are sometimes called fishes are mammals?

3. *Carnivorous*.—Name some carnivorous animals. What are animals that are not carnivorous called? What is man in this respect?

4. *Menagerie*.—The meaning of the word, and what language is it from?

5. *Vertebrate*.—Definition. Mention ten widely different vertebrate animals. What are those not vertebrate called? Mention some.

6. *Locomotive Appendages*.—Mention all the different kinds of locomotive appendages that you can think of.

7. *Pachyderms*.—What are they? What useful domestic animals are pachyderms?

8. *Hemisphere*.—Give definition and illustration from geography.

9. *San Diego to Monterey*.—Upon what ocean did I sail, and in what direction? Tell what you know about these places.

10. *Lustrous*.—Meaning and examples of things that are lustrous.

11. *Esquimaux*.—What are these people? Where do they live? What noted travelers have visited them? What one was lost?

12. *Whale*.—Where found. For what hunted.

13. *Icebergs*.—Describe.

14. *Domesticated*.—Meaning of word. Name all the domesticated mammals you can think of.

15. *Walrus*.—In my account of "Our Menagerie" I had not space to describe the Walrus. Let us see who will give a description good enough to publish.

CONDITIONS.—All competing for prizes must send their articles directed to "The Doctor, 245 Broadway," and they should reach me by June 1st. In order to make allowance for mail delays, I will give five days' grace, and none that come after the last mail on that day will be opened.

The first prize for boys and girls each will be a large Worcester's Dictionary. The others will be good and useful books.

Each article must give full name and age, as the age will be considered in making up the awards. Of course you will have to consult books, but I expect each one to give the facts in his or her own language.

The time is short, but there are good working evenings in May, and I expect a splendid lot of responses from my young friends. THE DOCTOR.

Aunt Sue's Puzzle-Box.

CROSS-WORD.

My first is in ocean but not in bay.
My next is in daylight but not in ray.
My third is in unit but not in one.
My fourth is in chase but not in run.
My fifth is in eagle but not in crow.
My sixth is in sprout but not in grow.
My seventh is in Spain but not in France.
My eighth is in sword but not in lance.
My ninth is in burning but not in fire.
My whole is what each one should strive to acquire. CLAYTON COLE.

CONCEALED FURNITURE.

- Yours is the nicest oven I ever saw.
- Tell mother that Abel got his tobacco to-day.
- I can not walk to your house, you live so far off.
- I should be debased in my own estimation.
- Uncle Ben churms regularly every day.
- The man left his tools in the garden.

CHAS. W. S.

DOUBLE ACROSTIC.

The initials and finals name a powerful country.

1. A post-office in Maine.
2. A post-office in no less than a dozen different States.
3. A river in the West.
4. A river in North Carolina.
5. A river in Europe.
6. A river that rises in Minnesota and empties in the Mississippi. Jes.

ANAGRAMS.

- | | |
|----------------------|-----------------------|
| 1. Hail to its pies. | 6. Peril its aim. |
| 2. Got real mice. | 7. Go, Montreal coin. |
| 3. No tacit one can. | 8. Victim run once. |
| 4. A ship enters. | 9. Greet one rain. |
| 5. Able items. | 10. Is't regal I am? |

PATCHES, CUTTINGS, AND FRAGMENTS.

1. Half of one city and the whole of another make an insect.
2. A girl's nickname, a boy's nickname, and another nickname transposed form an animal.
3. Turn a mischievous animal into a stupid one, and vice versa, by changing their heads.
4. Take the whole of one coin and part of another, to make a third coin. ADOLPH M. NADEL.

ELLIPTICAL SENTENCE.

(Supply the blanks with words pronounced alike but spelled differently.)

Will Evans went to see a certain party married, and was asked by his friend the — to — him about the — if he thought it —. N. TRAVIS.

NUMERICAL ENIGMAS.

1. I am composed of 24 letters;
My 24, 18, 10, 13, 14, is to be carefully guarded against.
At my 14, 7, 8, 22, 3, everybody is welcome.
My 9, 11, 15, 23, 22, is painful to the eyes.
My 2, 22, 1, 12, is a metal.
My 5, 4, 20, 21, 19, 6, 17, is a position.
My 4, 16, is a pronoun.
My whole is a proverb. C. M.

2. I am composed of 11 letters.
My 5, 6, 6 is where my 7, 9, 6 is often found.
My 6, 2, 2, 4 is a corner.
My 8, 5, 6 is a receptacle.
My 3, 2, 10, 11 is much used by dressmakers.
My 7, 10, 9, 1 is surly.
My whole is a bird. REEM ROSE.

ANSWERS TO PUZZLES IN THE MARCH NUMBER.

ARITHMOREMS.—1. Tenement. 2. Endow. 3. Ooze.
4. Osier. 5. Eyelet (1-let). 6. Extend. 7. Iowa. 8. Sieve. 9. Arm. 10. Six.

NUMERICAL ENIGMA.—Comfortable.

CROSS-WORD ENIGMA.—Milwaukee.

PI.—Content is the true Philosopher's stone.

SQUARE WORDS.—

1. W O R D	2. H O L D
O D O R	O H I O
R O T A	L I N E
D R A W	D O E S

PUZZLE.— Sword, word, rod, O!

HIDDEN CITIES.—1. Easton. 2. Saratoga. 3. Salem.
4. Batavia. 5. Charleston. 6. Dover. Andover.

About Aunt Sue's Prizes.

Perhaps some of you would like to know how we are getting along with the prize competition. I have already (March 7th) received a great many specimens, but am sorry to say that four-fifths of them have gone into the scrap-basket; some as utterly senseless, and others with an extra *re*, or an *n* short, or some other letter missing or over. Let me tell you how I proceed. I first read the transposition, and if there is "no sense to it" I pop it into the basket; if it is pretty sensible—for instance:

"A little new book! Can I have it? Try hard; no one will succeed with ease. He merits it who is earnest in will.—Mr. N. M. Mortenn"—then I study its merits, somehow thus: "That signature is rather far-fetched; however, there might have been a 'Mr. Martenn' in some quarter of the globe, somewhere. The sentence is pretty good—how is it with the number of letters? Ninety-four; so far right. A's all right; l, i, t, e, n, right; w's and s's wrong; so that won't do."

Those that are sensible and correct I file away for future reference; and about May 20th we shall decide which are the best six. Should there be a dozen equally good I haven't the least doubt in the world but what I can coax O. J. & Co. to double the prizes. I have received one sample to which I must object on account of its inelegance, though it answers the requirements in other respects. It is not of a kind I should like to publish. I am sure that TENN can do better. Now, my

dear puzzlers, I hope these hints will make you very careful. AUNT SUE.

Our Menagerie.

Barnum is starting out with his great show of beasts, and doubtless many of our boys and girls will see his collection of rare and strange animals. But many more will not see them, so I propose this month to have a little menagerie of our own. What animals shall we choose? Perhaps the best will be those that you see and hear the least about. So we will take some less-known animals of the Seal family. I see that Barnum has two of these, a Seal and a Sea-Lion, but they are very difficult to keep, especially in hot weather, as they are natives of very cold countries, and he may soon lose them.

The members of the Seal family are all *amphibious*. You will think that a pretty hard word to begin a description with, but it is one in rather common use. We get it from the Greek words for *both* and *life*, and it is applied to those animals that live two kinds of lives—one in the water and the other upon the land. If you ever have occasion to use the word, do not make the mistake of the conceited and ignorant showman, who described the Hippopotamus as "an *amphibious* animal, ladies and gentlemen; so called because it can't live in the water and dies upon land." The Seal family are all *mammals*, and are *carnivorous*—words which I do not intend to tell you the meaning of, for a reason you will see before I get through. So with other words I shall use. Just notice the words that are printed in what is called *Italic* type, and you will see why I have them so printed, and why I do not explain them as I go along. Our *menagerie* is a small one, and we must get out of it all the instruction possible. The seal family have long bodies, which are very limber and supple when we consider that they are *vertebrate* animals. Their striking peculiarity is in their *locomotive appendages*, which are very different from those of most animals. The forward two, or arms, are short, and so enveloped in skin that they appear like paddles or flippers, the fingers being concealed. The hinder limbs are covered with skin so as to look much like the tail of a fish, the long toes being joined by a web such as we see in most aquatic birds. Although these animals are capable of rapid motion in the sea, the most of them make but an awkward figure upon land, as they move by wriggling the body, and aid their progress by the use of their flippers. If their motion is not elegant, it is often astonishingly rapid when we consider the size of the animals. Living mainly in Arctic seas, the animals of the Seal family are well protected from the cold by a very thick layer of fat immediately beneath the skin, and the skin itself has usually a double coat of fur, which when wet lies so close as to be really water-proof. Some of them, such as the Walrus, look as if they belonged to the *Pachyderms*, but this you will find, if you examine the matter, is not the case. This will do for a general description of the family, and we will now look at the individuals in our collection. The best known is the

COMMON SEAL.

which is the lower right-hand animal. This is found in the waters of both *hemispheres*, preferring the colder regions, though it often finds its way into mild climates. This seal is usually about five feet long, sleek and smooth, with fur yellowish-gray variously marked with brown. In going from *San Diego to Monterey*, I once had a fine chance to see these animals. Doves of their would be seen with their heads above water, and as the steamer approached would stare at us with their great *lustrous* black eyes, and then disappear beneath the water. Seals are hunted for their furs, which are very valuable, as well as for the oil which their bodies furnish. Seal-fishing used to be carried on in small vessels, and was formerly considered very dangerous; but now steamers are built purposely for the business, and the work of catching them is so much easier that it is feared they will soon all be destroyed. The seal is almost necessary to the existence of the *Esquimaux*. What all the products of the land are to us in furnishing us with heat, light, food, and clothing, such the seal is to the *Esquimaux*. The fat or blubber of the animal is burned in stone lamps, and furnishes heat to both warm the hut and to cook the food—though the *Esquimaux* cooking is little other than thawing, as they prefer most of their food raw. You would not like to live a long while with the *Esquimaux*, where raw Seal and Walrus are the common food, and a piece of the lip of a *Whale* chewed raw is considered the finest possible dessert. The Seal being of such value to the *Esquimaux*, a great portion of their industry is devoted to catching it. At the very lowest portion of the engraving are shown the summer and winter methods of Seal-hunting. The picture at the right-hand you will know is the summer hunting, as the water is not frozen. The hunter is fastened into his peculiar canoe—woe to him if he upsets—and goes about among the dangerous *icebergs* to hunt for Seals, which he captures by the use of a *darpoon* attached to a line. In



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ANIMALS OF THE SEAL FAMILY.—*Drawn and Engraved for the American Agriculturist.*

the Arctic winter the sea remains frozen over for many months, and a different kind of hunting has to be followed. When a Seal has been under water for a long time it must come to the surface to breathe. If there is no natural opening through the ice it must make one from below, and these seal-holes or blow-holes are well known to the Esquimaux, who take advantage of them in hunting the animal. They know that sooner or later the Seal must come up to "blow," as the sailors say. Time is not so valuable in those icy regions as it is with us, so the Esquimaux "takes his time." Clad in the skin of several seals, he goes out to hunt others, his weapon being a peculiar spear attached to one end of a strong cord, made of seals' sinews, the other end of which is usually fastened to the hunter's body. He puts up a snow shelter to protect him from the winds, takes his place upon a snowseat, and waits. When the Seal comes up to breathe, he goes the spear with unerring aim, and then comes the struggle to decide whether the Seal shall drag the Esquimaux into the hole, or the Esquimaux shall pull the Seal out of it. The hunter is so skilled in bracing himself, and understands the matter so well, that he is almost always the conqueror, though stories are told of an opposite result. When the Seal-holes are covered by deep snow they are very difficult to find. Here the dogs are of service, and by their aid, and by probing with a spear, the position of the hole is found. The hunter does not remove the snow from over the hole, as that would alarm the Seal, but he waits and listens, and when he hears the breathing of the Seal darts his spear down through the snow. Very much like shooting in the dark, you will think, but long practice, and the knowledge that life with them depends upon Seal, make these people so expert that they rarely miss.

Seals are very intelligent, and are readily domesticated, when they show a great deal of attachment to persons, and can be taught many tricks.

THE HARP SEAL,

the central, upper animal, is one of great beauty. It is abundant upon the coasts of Greenland and Iceland, and, unlike the common Seal, does not often go upon the land, but prefers floating ice. Its color is a very delicate, grayish white, upon which are two bands of a deep black, which run along the body and unite over the back, forming a marking resembling somewhat in shape an ancient harp. This peculiar mark is not seen in perfection until the animal is five years old. At the left of the Harp-Seal we have the

SEA-ELEPHANT,

or Elephant Seal, as it is sometimes called. They are huge fellows, having been caught as large as thirty feet in length, and very productive of oil. They belong to the Southern Hemisphere, and move north or south, according to the season. They are very fond of going inland and hunting their food in fresh water. They are called Sea-Elephants because they are enabled to cloungate their noses in such a remarkable manner that it reminds one somewhat of the trunk of an elephant. When attacked, these fellows make up horrible faces, and if this does not drive away the enemy—why, they go away themselves, as, notwithstanding their huge bodies, they are poor fighters.

THE SEA-LEOPARD,

or Leopard Seal, so far as known, is also peculiar to the Southern Hemisphere. It is mainly remarkable for having no visible ear, and for the white spots upon its gray

body. Although it has long been known, there is but little to be told about it.

THE SEA-LION.

This is a regular sea-monster, which grows to the length of fifteen feet, and is very common on the Pacific coast. It is a very curious sight to see these huge fellows wriggle themselves out of the water and on to the slippery rocks. When their hair gets dry it is brown, although they look black when wet. I have seen dozens and dozens of them upon the rocky islands of the Pacific sunning themselves. Every now and then they will throw up their heads and give a cry, which is no doubt musical to them, but to us sounds very much like a howl of distress. They are not very ferocious, but will fight to defend their young. I was once out sailing on the Pacific, and stopped at a large rocky island about thirty miles from shore. We surprised a party of Sea-Lions, which rolled off into the water with great dignity. But one of the sailors was sly enough to catch a very young one before its mother could take it to the water. Such a funny, chubby thing as it was, not much larger than a sucking-pig, and about as fat! It seemed strange that such a helpless little lump could ever grow to become a monstrous Sea-Lion. After much persuasion, the sailor let it go, and I hope it found its mother. Don't you?

THE WALRUS.

This is the central figure in our menagerie, and one of the most interesting. You will know it if you ever meet it by its enormous eye-teeth. As I have taken up much space in telling you about the other animals in the menagerie, I propose to let you tell me all about the Walrus. Just read the article headed "Menagerie Prizes," and you will know all about it.

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ARE EVERYWHERE ADMIRER FOR THEIR

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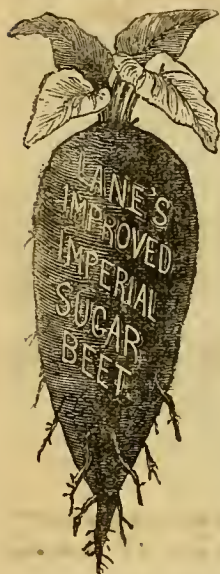
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Plants of the above variety by mail, post-paid. Per doz. \$1.00; per 50, \$3.00; per 100, \$5.00. By express, transplanted in wooden boxes, at same prices, freight paid by purchaser. Plants by mail or express at risk of purchaser.
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I have a new Squash for the Public (see reading matter on page 61, February No. of *American Agriculturist*). Here is what is said of it:

Hon. Marshall P. Wilder writes: "I have tested the Marblehead Squash. For solidity and richness, I have seen no squash that surpasses it."

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It is a very late keeper and good cropper. I have named it the Marblehead Squash. In size it averages with the Hubbard. Packages, with seed sufficient for six hills, with full directions for cultivation, 25 cts. each; five for \$1.00. Dealers supplied at the usual discount. My Seed Catalogue, with a very full description of this and other new vegetables, free to all.

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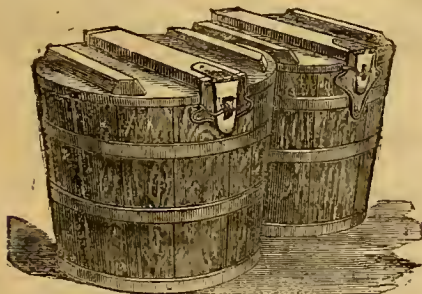
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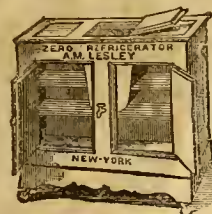
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WEATHER HOUSES**

Indicate the changes in the weather, and are pretty mantel ornaments. The little lady appears in fair and the man in stormy weather, and they never make mistakes. Sent prepaid to any address, safely packed, upon receipt of \$2 (Two), by **ALVAN L. LOVEJOY,**
Proprietor and Manufacturer,
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Special price to dealers.
ELASTIC LINK FOR PLOWS.—Saves team, harness, and plow-points; neat, simple, and strong. Sample, \$1.50. Agents wanted.
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Orange and Vine Culture in Southern California.

The Santa Anita Wine and Fruit-Growers' Association of Los Angeles Co., owning 8,000 acres of choicest land, partly planted in Oranges, Lemons, Almonds, etc., with a large bearing Vineyard and abundance of never-failing water, is now prepared to receive subscriptions to its stock, which consists of 300 shares at \$1,000. Each share, in addition to an equal interest in the general property, entitles the holder to immediate possession of a five-acre homestead lot in the settlement of Glenwood, which has been laid off on the property. For winter homes for invalids and others who may wish to escape the rigors of this climate it is unequaled in the world. As an investment, it will yield large returns, and no opportunity equal to it has ever been offered for industrious men, whose means may be limited, to acquire beautiful and productive homes. The promoters of the enterprise are the leading men in their portion of the State. Only \$100 required at time of subscription. For all information, prospectus, etc., address

WM. B. FLESTON, No. 40 Broadway, N. Y.

THE Superior MARY SPREADER
saved me Two Hundred Dollars on my hay last season.

ON THIRTY DAYS TRIAL!

The Triumph of Genius in overcoming all obstacles to the perfect success of a hand Sewing-Machine!

The movement of two parts makes the Stitch and feeds the Cloth, both of which are large and strong, thus doing away with all complications.

Increased to **FOUR TIMES** the size and weight of the \$12 style.

Its Development.

In the Spring of 1871 when the principles so peculiar to this machine were first presented to the consideration of an eminent patent lawyer of New York, he seemed forcibly impressed with the novelty and great simplicity of design, and assured us of its great originality, remarking that he "had in his possession over 1,500 transcripts of Sewing-Machine patents; that there was nothing, so far as he knew, that possessed these ideas of form of construction which, it carried into operation would for the first time establish the practical value of a low-priced Sewing-Machine, entirely divested of all complications, which have hitherto been the sole cause of the complete failure of all cheap Sewing-Machines."

Since then and previous to the construction of this, we have, step by step advanced in our line of progress, securing several patents, manufacturing and selling many thousands of machines, without infringing upon any patent, aiming to produce the best possible machine for the money, varying the price, as improvements were added, from \$7.50 to \$12 each at retail, and so far as we know, with scarcely an exception, the \$10 and \$12 styles are giving universal satisfaction, as many hundreds of letters in our possession bear witness.

Yet many have suggested that if the machine was increased in size and power it would very much add to its value and popularity, and make it all that heart or hand could desire. These kind suggestions, coupled with past success, stimulated us to still greater efforts, and far more valuable improvements. We have, therefore, increased the weight from 1½ lbs. to 7 lbs., which enlarges its capacity to that of the most expensive first-class family Sewing-Machines, without impairing its portability.

By this increase of size we have added cam and eccentric movements, a balance-wheel, also an oscillating needle-clamp, by which the length of stitch can, with the greatest ease, be changed to the finest shade of variation without touching the needle.

Many other improvements have been added, which give value, strength, and beauty to the machine, all of which are harmoniously united by the best mechanical skill, and highly adorned by artistic beauty.

The Strength, Capacity, and Durability

of this Machine is **EQUAL TO ANY, REGARDLESS OF COST**; and is alike adapted to all qualities of goods and all sizes of garments. By its peculiar construction, it runs with such ease that the strength of a lady's little finger readily makes upwards of 500 stitches per minute, which, with its **SEMI SELF-GUIDING FEED**, enables even the most delicate person to manage it with a degree of pleasure never before realized, and kindly relieves woman from the necessity of again toiling with the burdensome **DEATH TREAD OF THE TREADLE**, "which is more powerful and efficient in the production of disease of various kinds in that sex than almost all other causes combined."—*Mass. State Board of Health. 1872. Page 198.*

It will not Disappoint You.

We want it distinctly understood that no machine, at any cost, can so easily enable every one to do all of their family sewing as this; that none is more carefully or thoroughly made, or constructed on more durable principles, and none so sure of always being in perfect order.

As heretofore, our \$12 Machine is sold on **THIRTY DAYS' TRIAL**.

BECKWITH SEWING-MACHINE COMPANY,

Temporary Office, until May 1st, 26 WEST BROADWAY.

862 BROADWAY, New York (near 17th Street).

THE

BECKWITH

PORTABLE

Family Sewing-Machine!

Enlarged and Improved.

\$20.



\$20.

Its Weight is 7 Pounds.

The Cloth Plate is the size used by a \$100 Machine, is of polished, plated Steel. Attachments of proportionate size and quality, while the entire Machine has corresponding finish throughout. Braider, Embroiderer, Hemmer, Gatherer, four sizes of Needles, &c., are given with every Machine.

It Makes the Stitch, and Feeds the Cloth, with only Two Pieces.

While all other Machines have many complications and a multiplicity of small, delicate pieces, especially in the four-motion feed, which have heretofore been the special cause of the uniform failure in all low-priced Machines, this Machine, by the inventive genius of its name-sake, Mr. Beckwith, does away entirely with all complications, and performs the entire work of making the stitch, and also of feeding the cloth, with the movement of only two pieces—the Needle-arm and Loper, both of which are large, simple, and strong, and are propelled by cam and eccentric movements, which enforce mathematical precision, besides giving the greatest possible durability, while the Machine, by its slight friction and fine loilsb, runs light and smooth as an evenly-balanced wheel.

Mode and Ease of Operation.

The Machine is readily fastened to the leaf of a table by the use of a thumb-screw, and is so constructed that the crank and balance-wheel are below the leaf of the table, which permits the arm of the operator to remain in a natural and easy position, and requires only a slight movement of the hand from the wrist to run the Machine to any desired speed. And as the Machine feeds from the table towards the operator into the lap, large garments can be spread upon the table and fed with one hand, or even with one finger, while the left arm reposes on the table. Hence, by its peculiar construction, every obstacle is actually removed to a most easy and successful operation of a hand Machine. It makes the strongest possible seam, the only stitch that stands where the severest tests are required, as for instance, on garments that need washing, goods that are sewed on the bias, and all elastic goods—while all woolen undergarments, parasols and umbrellas, that are subjected to the severest tests, are now exclusively made by this **ELASTIC LOOP-STITCH**, which, by a most simple device, is accomplished by a single tension, a single thread, direct from a single spool. It also fastens its own seam securely, yet, when desired, it can be unlocked at pleasure.

What We Believe and Know.

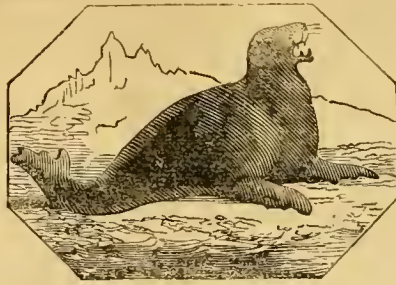
We believe we have, by years of study and experience, learned what the people need to be fully equipped with a **Reliable Family Sewing-Machine**. We also believe that ours, being divested of all complications, and now having been made amply large in its essential portions, will fully meet the demands of the people. We furthermore know that the Machine is all we claim it to be; that it is as well made as honor, money, and mechanical skill can produce, and offered at less than one-third the usual price of other first-class Machines, with many advantages over all.

Conditions of Sale.

Now, all we ask is, the generous co-operation of an appreciative public. To this end, we propose to sell the Machine **ON 30 DAYS' TRIAL**, and will furnish it complete to any purchaser, or forward it to any part of the country by Express (the purchaser paying charges), on receipt of \$30, and give with it a beautiful **Portable Case**, with handle to carry it at ease by hand. This case we will carefully box, which, all complete, will weigh not far from 12 pounds, 8 by 9 inches square. If after having the Machine 30 days it does not give perfect satisfaction, we will refund the \$30 on return of the Machine, less the Express charges. If any doubt our honor or responsibility, we will gladly give the best of references. Complete directions go with every Machine, which are ample for the most inexperienced. Agents wanted in every city and town in the country. Terms **POSITIVELY CASH TO ALL**, with liberal discount.



RIDING COAT.



SEA LIONS.



VLACKE-VARK.

P. T. BARNUM'S GREAT TRAVELING WORLD'S FAIR for the Campaign of 1873.

P. T. BARNUM TO THE PUBLIC.

LADIES, GENTLEMEN, FAMILIES, CHILDREN, FRIENDS:

My career for forty years as a public Manager of Amusements blended with Instruction is well known. You have all heard of my three New York Museums; my appearance before kings, queens, and royal courts, with Gen. Tom Thumb; my great triumphal tour with Jenny Lind, the Swedish Nightingale; and my immense Traveling Exhibitions. Everybody concedes that I give ten times the money's worth, and always delight my patrons. I now come before you with the **LAST GRAND CROWNING TRIUMPH OF MY MANAGERIAL LIFE.**

Notwithstanding the burning of my last Museum, in December (which, however, did not destroy any of my great traveling chariots, vans, cages, or horses, nor duplicates of most of my living wild animals, which were then on exhibition in New Orleans), I have been enabled, through the aid of cable dispatches, electricity, and steam, and the expenditure of nearly a million of dollars, to place upon the road by far the largest and most interesting Combination of **MUSEUM, MENAGERIE, and HIPPODROME** ever known. Indeed, it may fairly be called a great **TRAVELING WORLD'S FAIR.**

No description will convey an adequate idea of its vastness, its beauty, and its marvelous collection of wonders. After our *Grand Opening* at the buildings of the American Institute, Saturday, March 29th, where the corner-stone of our guaranteed success was laid, which amounted in reality to a grand ovation—in fact, so desirous were the citizens of the Metropolis to exhibit their appreciation, that hundreds had to be denied admission at each performance for want of room, even in that immense building.

It will travel entirely by railroad, and he exhibited this season in nearly every large town in New England, Canada, and the States east of the Mississippi River, and north of the Ohio. It requires more than one hundred cars, besides *fifty of my own*, made expressly for this purpose, and five or six locomotives, to transport it. My daily expenses exceed \$5,000. We can only stop in large towns, and leave it to those residing elsewhere to reach us by cheap excursion trains, which they can easily get up.

Although I have consolidated more than twenty shows in one, containing nearly one hundred gorgeously magnificent gold and enameled cages, dens, and vans, requiring the services of nearly **ONE THOUSAND MEN** and **OVER FIVE HUNDRED HORSES**, the price of admission to the entire combination of exhibitions is only the same as is charged to a common show—viz., 50 cents; children, half-price.

FREE ADMISSION to all who buy Mr. Barnum's Life, written by himself, brought down to February 1873, 850 pages, illustrated, bound and gilt. Price reduced from \$3.50 to \$1.50.

HORACE GREELEY said, "P. T. Barnum's book was worth a hundred dollar greenback to many a young man beginning in life."

My great Hippodrome-Tent comfortably seats 13,000 persons at one time, while my numerous other tents cover several acres of ground.

THE PHILADELPHIA LAWN-MOWERS.

Power Required.	Width of Cut.	Weight.
No. 00, A Lady,	10 inches, 28 lbs.	
" 1, Jr., A Youth,	14 " 37 "	
" 1, One Man,	15 " 61 "	
" 2, Jr., One Man,	16 " 42 "	
" 2, One or Two Men,	20 " 75 "	
" 2 1/2, A Light Horse (Draft Pole)	30 " 215 "	
" 2 1/2, (Driver's Seat and Shafts),	30 " 375 "	

We recommend our 14-inch and 16-inch Machines as being only about one half the weight considered necessary by other manufacturers, and on this account they are much easier worked, are stronger and more durable, and do their work in the most perfect manner.

Try "The Philadelphia" and you will buy no other.

Sold wholesale and retail by **GRAHAM, ENLÉN & PASSMORE**, Patentees and Manufacturers, 631 Market St., Philadelphia.

W. A. COVERT & CO., Produce Commission Merchants, No. 64 Pearl Street, New York. "Quick sales and prompt returns." Send for our weekly Prices-current and Marking Plate.

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CAN BE MADE BY SELLING THE

AMERICAN SUBMERGED PUMPS.

County and town rights of this Pump for sale by

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See March and April Nos. of this Paper.



BUILDING FELT.

This water-proof material, resembling fine leather, is for outside work (no tar substances used) and inside, instead of plaster. Felt carpetings, etc. Send two stamps for circular and samples.

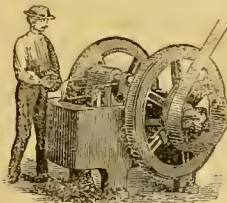
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MAGIC LANTERNS.

Catalogue, priced and illustrated, sent free.

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BLAKE'S STONE and ORE BREAKER,

For reducing to fragments all kinds of hard and brittle substances, such as **ROCKS, ORES, MINERALS, AND DRUGS.**

Extensively used for making **Concrete for MacAdam Roads**, Ballast for Railroads, reduction of Auriferous Quartz, pulverizing Emery Stone, preparing Iron, Copper, and Zinc Ores, etc., etc. *Twenty* prize medals awarded in Europe and America. The patent for this machine has been *fully sustained* in the Courts, after repeated and thoroughly contested suits. Those who *make, sell, or use* machines infringing on this patent do so at their own risk.

Address **THE BLAKE CRUSHER CO.,** New Haven, Ct.

NEW YORK AGENCY,

137 Elm Street,

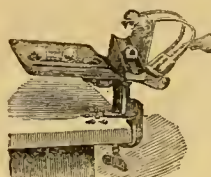
Where a machine may be seen in operation.

NUTRINA,

Made from choice roasted Wheat. It will cure Dyspepsia and Constipation, and regulate Digestion. It will keep fresh and sweet any length of time, and cook in less time than ordinary cracked wheat. Sold by Grocers. Sample package sent free on receipt of 25 cents.

Manufactured only by the

NUTRIO MANUFACTURING CO., 1320 S. 9th St., Philadelphia.



The Family Cherry-Stoner.

The only practical Cherry-Stoner made.

It leaves the fruit plump and round, with its juices preserved. Sold in all large markets. Send \$1.00 for sample.

D. H. GOODELL, Sole Manufacturer, 55 Chambers St., New York. Works at Antrim, N. H.

P.S.—Also sole manufacturer of Lightning and Turn-Table Apple-Parers, Lightning Peach-Parers, and Climax Apple-Corer and Slicer.



IMPROVED FOOT LATHES,

With Slide Rest and Fittings. Just the thing for the Artisan or Amateur Turner.

ALSO HAND PLANERS.

Many a reader of this paper has one of them. Selling in all parts of the country, Canada, Cuba, Europe, etc. Send for descriptive Catalogue. Address **N. H. BALDWIN, Laconia, N. H.**

AGENTS, LOOK!—\$12 a day made selling Scissors Sharpener and other wares. Sample 25 cts. Catalogue free. **T. J. HASTINGS & CO., Worcester, Mass.**

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Horse Book, \$2.50; Cattle, Sheep, etc., \$2.50.

Two new and valuable books, by Dr. Geo. H. Baid. Just published, and should be owned by every man who keeps a horse or a cow. Sent by mail on receipt of price. We want 1,000 Agents to canvass the entire country with these books. Liberal terms to Agents. Address with stamp for reply, **JOHN P. JEWETT & CO., Publishers,** 5 Dey Street, New York.

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For In and Can be EASILY one having the State your case, for illustrated circulars and prices.

Please mention this paper.



ling Chairs and Invalids Cut-Door Use. propelled by any use of hands, and send stamp circular of different **S. A. SMITH,** 99 Wilk in St., N. Y. City.

FARMERS, BE SURE AND EXAMINE the superior **Hay Spreader**; it is the cheapest, most complete, and most durable Hay Teller ever put into the field. Read a few of the comments received. Send for circular and description to **HIGGANUM MFG CO., Higganum, Ct.**

NO DRUNKARD SHALL ENTER INTO THE KINGDOM OF HEAVEN.

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AND

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All payments must be made by check payable to the order of the *Union Trust Company*, 73 Broadway. The moneys arising from the sale of the stock hereby sold are paid into the *Union Trust Company*, and can not be paid out by said Company except upon vouchers showing that the money has been actually and honestly expended in the creation of the Industrial Exhibition Building, or in acquiring title to land.

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There can be no safer investment than this. It is a home investment. It is the ownership of land on New York Island, and the erection of a permanent building on the same.

In accordance with the charter, and by a resolution of the Board of Directors of the Industrial Exhibition Company, passed July 21th, 1872, the following **memberships** have been created, and are offered for sale at the above-named places and by authorized Agents throughout the United States.

The proper holder of any of these is entitled to **free admission** to the Industrial Exhibition, the Art Gallery of Statuary and Paintings, and the Garden of Plants, during the time it is open, and limited only by the duration of the membership. These memberships do not entitle the holder to admissions to **special** places of amusement, except as conducted by the Exhibition Company.

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Payment to be made whenever called on by check payable to the order of the Union Trust Company.

A suitable Badge will be adopted, for Life, Family, and Hereditary members.

Memberships will not be sold after the Building is open to the public.

Each purchaser of a membership will be given an engraving of the Building.

Banks, Bankers, and Individuals are wanted to act as Agents, throughout the United States.

Applications for space will be filed in the order in which they are received.

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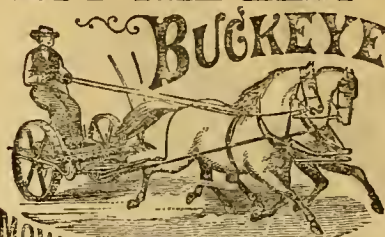
INDUSTRIAL EXHIBITION COMPANY,

No. 925 Broadway, New York City.

"Our Preference is the Buckeye."

American Agriculturist, June, 1872.

BUY THE BEST!

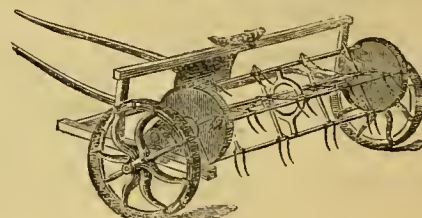


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STYLES, SIZES & PRICES TO SUIT ALL FARMERS.
Descriptive Circulars Forwarded by Mail.

THE

AMERICAN HAY-TEDDER.



Enables the most important Agricultural product of America to be cut, cured, and stored in the barn in one day. Improves the quality and increases the value of the hay crop. Prevents all risk of damage from storms and sudden showers. Is simple, durable, and of light draft. Was awarded the New England Agricultural Society's only first prize, at the Great Field Trial, at Amherst, Mass., as being superior to all others, and the best and only perfect machine for tedding or turning hay.

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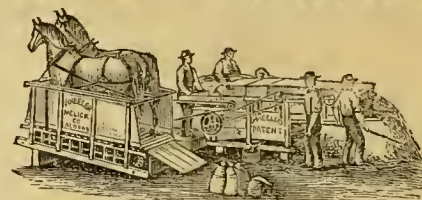
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PROPRIETORS, PATENTEES, AND MANUFACTURERS OF

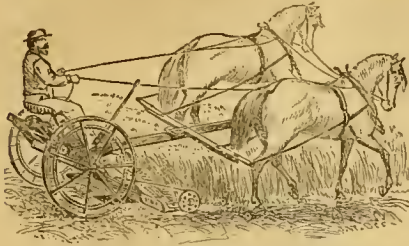
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Chapman's Railway Pitching Apparatus,
more profitable than any simple Horse-Fork for unloading hay and grain into barns and sheds, and for stacking. *Saves Farmer's labor, time, and money. Sent on trial. Agents wanted.* Send for Illustrated Circular, with suggestions in building barns. Address **CHAPMAN & WEEKS,** Utica, N. Y., or Syracuse, N. Y.

**WE WOULD NOT SELL OUR
SUPERIOR HAY SPREADER** for five times its cost if we could not obtain another.

Direct Draft Eureka Mower.



PROCLAMATION.

We proclaim for the information of hay-producers that the Direct Draft Eureka Mower can not be equalled by any side-cut Mower on the following important points:

1st. Time of cutting. 2d. Power expended. 3d. Quality of work which is the condition of the stubble, and the way the grass is left for curing. 4th. Time of curing the grass—no tedder to be used. 5th. Quality of hay. 6th. Economy of cost in gathering a hay crop. 7th. Durability of Machine.

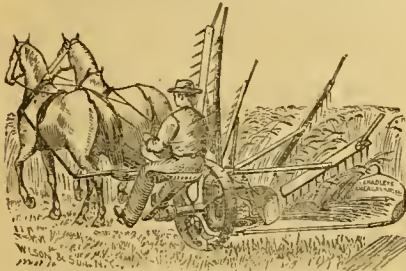
It is highly important to all hay-producers who are unacquainted with the Eureka that it is fact—THE VERY GREAT SUPERIORITY OF DIRECT DRAFT OVER SIDE-CUT—should be settled in their mind: by a thorough and exhaustive comparative test trial before competent judges.

Therefore, We, The Wilber's Eureka Mower and Reaper Manufacturing Company, will present any Manufacturer \$1,000 who will meet us in a trial during the harvest of 1873, and succeed in equaling the Eureka Mower on the above-named points by using a Side-Cut Mower.

The unsuccessful party to pay all expenses.

ISAAC W. WHITE, President.

Poughkeepsie, N. Y., March 10th, 1873.

BRADLEY'S
AMERICAN HARVESTER.

We warrant it to cut any grain that grows, and in any condition.

It will do better work, is more durable, and is in every respect superior to our former manufacture of the celebrated

Johnston "Sweepstakes" Reaper.

Don't buy any other until you have seen it.

For particulars, address

BRADLEY MAN'G CO., Syracuse, N. Y.

CARHART'S
Patent Two-Horse
PULVERIZING CULTIVATOR

Is superior to the best Wheel Cultivators. It can be adjusted to any depth required without the use of wheels.

The draft is reduced nearly one half. The price is only Twenty-two Dollars.

It pulverizes the ground thoroughly, and can be used for more purposes than any other implement on the farm.

BRADLEY MAN'G CO., Syracuse, N. Y.

WARREN HOE.



20,000 sold last year. Upwards of 50,000 sold for 1873. Show this to your merchant; ask him to let you try one. You will not part with it for twice its cost. Made only by PETERS BROTHERS' MANUFACTURING CO., Marshall, Mich.

AFTER ONE DAY'S USE of the SUPERIOR HAY SPREADER no farmer will ever part with it.

HARROW YOUR WHEAT

WITH THE

Thomas Smoothing Harrow

AND

BROADCAST CULTIVATOR,

And insure an increase of from five to ten Bushels per Acre.

The testimony of hundreds of best farmers in proof is positive and conclusive.

Samuel V. Miller, Milo, N. Y., says: "I went all over my wheat in the spring, before sowing plaster and grass seed, and have no doubt it increased my crop one fourth, my neighbors say one half, besides tilling the ground for clover seed in the most perfect manner."

Byram Moulton, Alexander, N. Y., says: "I used the Thomas Harrow on my wheat last spring, and raised 1,600 bushels on 30 acres, while my neighbors' wheat, with equal promise without harrowing, yielded only 1,100 bush. per acre." Sent for Catalogue.

J. J. THOMAS & CO., Geneva, N. Y.



Ask your PLUMBER for the

People's Pumps,

and send for a Circular.

The best Force-Pumps in the market, and for sale everywhere. Prices from \$10 to \$30.

For Stock-yards, Farms, House, and Greenhouses. The Cut-Door Pumps are Non-Freezing, and are adjustable to wells from 6 to 100 feet deep.

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Agents for States and Territories west of Rocky Mountains.

For sale by SCOTT, DUNHAM & CO.,

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Will Cleanse your Clothes without Rubbing. Every one Sold is fully Warranted. It will do the Washing of the Family while you are Eating Breakfast and doing up Dishes.

READ THIS CIRCULAR.

I respectfully ask all to read this circular carefully, and candidly consider what I propose as a matter of business. Before making known my terms, permit me to state that the matter of washing clothes is one of no small consideration; it is something which concerns every family and every individual. It is but recent since Hand Washing was in common use. Lately, however, the inventive genius of the country has been directed to the invention of various devices by which much of the labor, drudgery, loss of time, and wear of material might be obviated. Ponderous as well as intricate WASHING MACHINES have been constructed—many of which are decided improvements over the old method of washing—and these machines have been very salable. People will continue to have Washing Machines; but let me ask you if the STEAM WASHER can be constructed for a few dollars (much less than any ordinary Washing Machine), and enable all to wash by steam without labor, loss of time, without wearing of clothing, etc., is it not reasonable to suppose that it will supersede, in a great measure, all the Washing Machines now in common use? The sale of the WASHER is unparalleled, and must be so. There is nothing like it in use. It is new, and every family needs it, and will buy it. I wish to secure a few good men to sell rights for me, and in order to secure as many as I need immediately, I offer extra inducements. My price for territory is \$9 per 1,000 inhabitants; but if you will buy a single county, and agree to sell rights for me, I will allow you to deduct 66% per cent as your commission; consequently your county would cost you but \$25 instead of \$25, should it contain but 25,000 inhabitants, more or less in the same proportion. And to those buying rights I will sell Washers at nearly cost, and to those not buying rights, I will furnish Washers at \$60 per dozen; and bear in mind, I will sell to no one, except a single dozen, until he first buys the right to a county. Any tinner can make the Washer as well as they are made here, and save the cost of transportation. Remember that by purchasing the right of a single county, you shall have the privilege of selling any county or State for me; and upon application I will forward the deed to you by express for any territory which you have sold for me, provided that said territory is not already disposed of when I receive your order. I make all the deeds, so there can be no mistakes. The amount you will have to pay me is simply \$3 per 1,000 inhabitants, in any county or State. I shall make these very liberal offers to a limited number, and for a short time only; after which I shall sell at my regular price—\$9 per 1,000.

Many of my patrons have requested me to suggest the best method of selling the Steam Washer, in order to make the most money in the shortest time. In reply, I would say there are many methods which might be suggested, all of which seem to work well, but the most prominent of which I will suggest: In the first place, send for a sample and carefully test it. You will learn by a single trial how to wash with it successfully. All you have to do now is to exhibit it to others. I will suggest that you make an engagement to wash at a certain place, at an appointed hour; manage to have as many present as possible. You will be astonished at the intense excitement it will produce after the water and steam have rushed through the tubes and foamed over the clothing, rushing back through the clothing to the lower bottom to be suddenly returned again in the same manner—say for thirty minutes—you take out the clothing, rinse, and wring out, and find the clothing perfectly clean. You will find all perfectly delighted with it.

You can take orders from nine in ten present, to be filled afterwards, at \$10 each. A single trial in this manner will satisfy you that the Steam Washer is a success and will sell. You should lose no time in ordering a deed for your county, to be sent by express, C. O. D., if not convenient to advance the money. You should continue to take orders, and by the time your deed would come to hand you might have a gross sold. You should arrange with a tinner to make the Washers—the price will vary according to style and finish. I have known some agents to sell as many as twenty Washers in a day. After you have introduced it more or less in your county, you can take another county, and rest assured that whenever you get a single Washer into a neighborhood it will sell many more. Consequently, after you have sold a few hundred in a county, you can sell the right of your county for much more than at the start. You can calculate what your gains will be by buying a single county, but this is not a tenth part what you ought to make, for while you are traveling you will meet with many men who want to make money to whom you can sell rights. There is no business you can engage in which offers such splendid inducements, besides it is a safe business, no loss, and pleasant because it renders perfect satisfaction. I can not see how I can propose better terms. Should I allow my patrons to make their own terms, I scarcely believe they could make better terms for themselves, and make more money.

On the receipt of Five Dollars I will ship you a complete Washer, as a sample, together with a Certificate of Agency, with full instructions how to conduct the business. And upon the receipt of the Washer you may have time to test it, and if you find it not as represented I will refund your money. The Washers retail at \$10. After I send you a sample, I will hold your county a reasonable time for you to decide whether you wish to purchase or not. I will furnish blank deeds, and will do all I can to enable you to succeed in the business. Let me hear from you soon, or your choice of territory may be taken by some one else.

ADDRESS

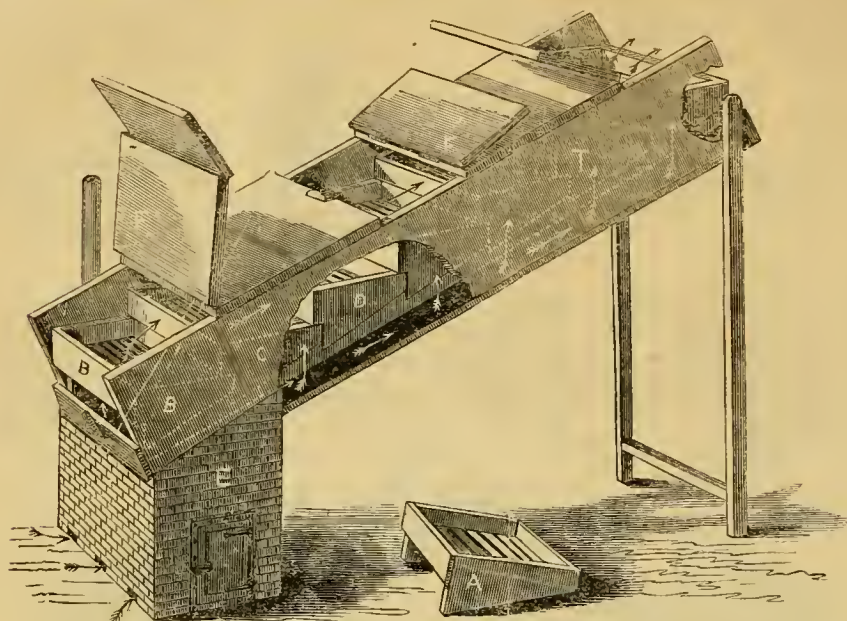
No. 10½ Sixth Street.

J. C. TILTON.

PITTSBURGH, PA.

BUILDING PAPER!

For Sheathing, Roofing, Denfening, Carpet Lining, and as a substitute for Plastering. Send for Samples and Circulars, to B. E. HALE & Co., 55 & 58 Park Place, N. Y., or ROCK RIVER PAPER CO., Chicago.



FRUIT PREPARED ON THE AMERICAN FRUIT-DRIER

Has taken the **FIRST PREMIUMS** wherever Exhibited.

The apparatus has been thoroughly tested two years, has given entire satisfaction, and its use is rapidly extending wherever it is known.

WITH THE AMERICAN FRUIT-DRIER

Surplus fruit of every kind, and also that which from over-ripeness or inferior size or quality is unfit for marketing in the unprepared state, can all be converted into a marketable commodity, which from its excellence will command the highest price. Such fruit as is prepared by this means is now selling in this city at an average of fifty per cent more than ordinary dried fruit.

NO MORE CANS NEEDED.

In preserving fruit, the end to be gained is to retain the sweetness and flavor permanently. The canning process was a great advance on the old-fashioned "pound-for-pound" way of making preserves, but in the necessary steaming process there is loss of valuable constituents of the fruit, much of which is avoided by the new method. More than this, experiment proves that by this latter process the fruit is *increased in sweetness* by the change of its starch into glucose or fruit-sugar. In other words, while passing through the Drier it is *ripened more fully*. Fruit so prepared requires one quarter to one third less sugar to prepare it for the table than is needed for canned fruit. Other manifest advantages over the canning system are: **Less Trouble in Operating; Certainty of Keeping; No Loss from Broken Bottles; Great Saving of Room in Storing.**

THE AMERICAN FRUIT-DRIER is so simple in plan and in working, that any carpenter can make it, and any ordinary laborer operate it. Its capacity can be adapted to small or large operations. The ordinary family size, No. 1, will in favorable weather dry apples as fast as two persons can prepare the fruit. The cost is so moderate, that every farmer can profitably buy it to save the surplus product of his orchard or fruit-yard.

Having formed a company under the name and style of the **AMERICAN DRIER COMPANY**, we are prepared to furnish Driers to agents and others in the United States for the season of 1873, in three different sizes, viz.:

- No. 1, 24 inches wide and 12 feet long, \$25.00.
- No. 2, 30 inches wide and 14 feet long, \$35.00.
- No. 3, 36 inches wide and 16 feet long, \$45.00.

The above are the factory prices, all complete except stove—delivered at the freight or express office, Loudon, Pa. Any common nine or ten-plate or any other kind of wood or coal stove can be used. Printed directions for setting up and operating sent with each machine.

No. 1 is a convenient size for general use, and will dry all the surplus fruit on any ordinary farm, drying as fast as two hands can hand-pare and cut the fruit.

No. 3 will give employment to four hands.

For fruit-growers in the fruit districts we make a series of **DRIERS** to do any given amount of work, ranging in price from \$100 to \$500.

Portable **DRIERS** with sheet-iron stoves all ready to operate, and exhibition models for agents, furnished to order; prices according to size, style, and finish.

Furnaces and steam-heaters for large **DRIERS** furnished at the lowest rates.

Samples of fruits and vegetables dried in the **AMERICAN DRIER** sent by mail or express, prepaid, on receipt of 25 cents.

We also invite the attention of manufacturers of various articles which require drying, to the combination of principles embraced in the **AMERICAN DRIER** patent claims. By special mechanical arrangements it may be adapted—on a large scale—to various purposes, such as drying grain, hops, herbs, chemicals, paper, straw-boards, lumber, and for drying and curing beef, pork, fish, etc., etc.

Agents wanted to introduce and sell the **DRIERS**, and the rights to make and use them.

For further information, show-bills, circulars, and special terms to agents, send name and post-office address, inclosing stamp, to the

AMERICAN DRIER CO.,

LOUDON, FRANKLIN CO., PA.

A model of the Drier may be seen at the office of *American Agriculturist*, 245 Broadway, N. Y.

Patent Thumb-Piece Sheep-Shears. Patent Pruning & Sheep-Toe Shears.

MANUFACTURED BY

HENRY SEYMOUR & CO.,
29 & 31 Rose St., New York.



First Premium awarded by Am. Institute Fair and twelve different State Fairs. Highest recommendation from Hon. H. S. Randall, Pres't Wool-Growers Association, and author "Practical Shepherd." Recommendations from many practical shearers.

"The Sheep-Shears work splendidly, and I would not ask for any better. So says Mr. Jepson, who shears our sheep, and he has sheared thousands."

(Signed) L. A. CHASE, Am. Agriculturist.

\$2.25 4 1/2 \$2.50 5 \$2.50 5 1/2 \$2.75 6-in. blade.

"I have tested your Pruning and Sheep-toe Shears, and they are excellent. I used them to dock the tails of my lambs this season, and found them the handiest instrument for that purpose I ever used."

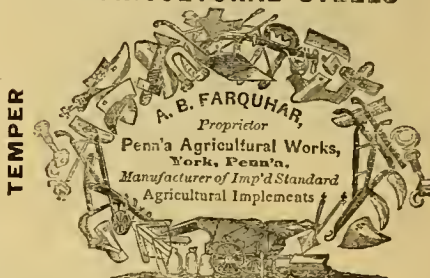
(Signed) HENRY S. RANDALL.

PRUNING SHEARS.



Every pair warranted. Free by mail on receipt of price. Pruning or Sheep-toe Shears, \$3 per pair. Sold every where. State where you saw this.

AGRICULTURAL STEELS



TEMPER

WARRANTED.

A SPECIALTY.



Metropolitan
Agricultural
Works.

58 AND 60 CORTLANDT ST., NEW YORK.

I invite Farmers and Dealers in Agricultural Implements to visit my extensive warehouse, where they may procure the most approved IMPLEMENTS for the FARM and GARDEN, at the VERY LOWEST market prices. Also,



BONE MEAL—Prepared for Horses, Swine, Cows and Poultry—5c. per pound.

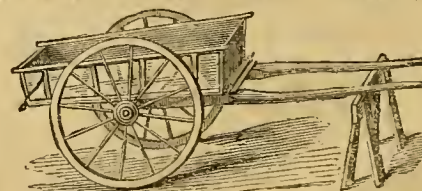
Send for Agricultural Almanac for 1873.

H. B. GRIFFING,

Successor to Griffing & Co.,

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FARM CARTS AND WAGONS



Always on hand and made to order. Also every description of Heavy Cart and Wagon for city and country use and for shipping. Illustrated Circulars free by mail.

JOHN L. KIPP,

163 Eldridge Street, New York.

TAYLOR'S GREAT COMPOUND FOR HORSE and CATTLE FOOD.

The unprecedented success that has marked the introduction of this food is beyond parallel. It has given satisfaction in every case. Horses fed with this food have rapidly recovered from the weakening and debilitating effects of the recent epidemic, and are now healthy examples of the good results of nutritious treatment. It has also been used with equal beneficial effects with cattle, sheep, swine, and even poultry. It is a sure cure for bots and worms in horses, and the other incidental diseases of the young horse. It entirely eradicates chicken cholera, fattens oxen, enriches the milk of cows, and purifies the blood of all animals.

2½ lb. packages, 50 cts.; 5½ lb. packages, \$1.50.

Manufactured exclusively by the

MANHATTAN FEED MILLS COMPANY.

N. B. TAYLOR, President.

Send for circulars.

Business Office, 508 West 26th St., New York.



The Flowing Spring Poultry Fountain.

No further trouble in keeping a constant supply of pure, clean water before your fowls. Only about one-tenth of the water is required, as none is wasted.

The Poultry drink as from a flowing spring, with any required capacity, and no possible danger of drowning. With ample drinking convenience, and no possible danger of fouling the water. Gives the most perfect satisfaction. Persons who have it in use say they would not be without one for ten times its cost. The Fountain is ornamental, very durable, and can not get out of order. Being made of iron and well galvanized (inside and out), it can not rust or break. The water in the dish is renewed many times a day, while the bulk is preserved in an air-tight reservoir.

For sale by all Hardware Dealers and Seedsmen throughout the country. Liberal discount to the Trade. Send for sample. Money refunded if not satisfactory.

2 Gallon, each.....\$2 00
4 " ".....3 00
5 " ".....3 50

At wholesale by CRAGIN, PROS. & CO., 113 Lake St., Chicago; J. H. POCOCK, 119 Cherry St., St. Louis; SELLEW & CO., Cincinnati. Manufactured only by the
IRON-CLAD CAN CO.,
31 Day St., New York.

EGGS. EGGS. EGGS.

From premium Partridge Cochins, \$2.50 for 13; Fritz Hondans, \$2; L. Brahmas (two yards, Williams and Comey stock), \$1.50; G. L. Sebright and B. B. Red Game Bantams, \$1.50. Eggs warranted fresh, pure, and to arrive safely. Also, a few choice I. B. and P. C. breeding cockerels at low rates. Address

A. M. CAREY, Sellers' Grove, Pa.

Nansemond Sweet-Potato Plants,

May and June. Best for the northern climate. Packed to carry long distances. By mail, 100, 50 cents. By express, 1,000, \$2.00. Discount on large orders. Address
S. GRAY, Norwalk, Huron Co., Ohio.

10 BUSHELS AN HOUR

SHELLED by O'Hara's DOLLAR CHAMPION CORN-SHELLER. Indorsed by all the press and 50,000 farmers. Big PAY TO AGENTS. Sample and terms to dealers sent by mail on receipt of \$1. THE INVENTOR'S MANUFACTURING CO., 175 Broadway, New York.



\$30 PER WEEK and expenses paid. W. want a reliable agent in every County in the U. S. Address HUDSON R. WIRE CO., 130 Maiden Lane, N. Y., or Chicago, Ill.



AMERICAN RUBBER PAINT

MIXED READY FOR USE
WILL LAST FROM

2 TO 3 TIMES AS LONG
AS PAINT MIXED IN THE ORDINARY MANNER. It dries with a hard, rich, glossy surface, and will not chalk, crack, nor peel off; requiring no oil, thinner, or drier, and will cover more surface with the same body, is much cheaper, more durable, and better in every respect than any other paint.

PRICES:

Greens.....\$2.50 per Gal.
Other Shades, including White and Black.....2.50 " "

Paint for Roofs, Water-proof.....2.25 " "

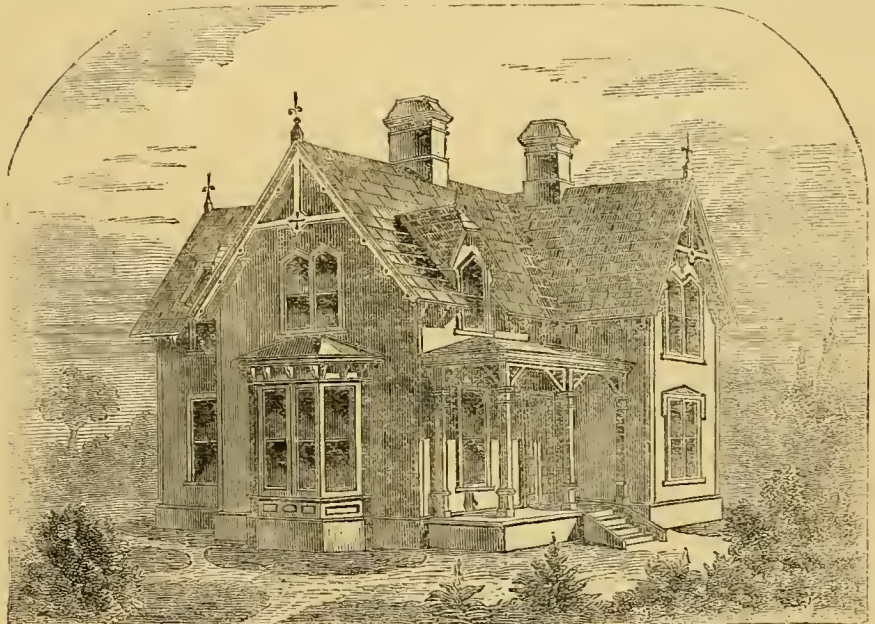
Packages of five gallons and upwards delivered free of expense. If the paint is not satisfactory, it can be returned, and the money will be refunded. Send for sample card, containing thirty shades, and directions for ascertaining the amount of paint required to cover a given surface. Address

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One of the Best Books on Village Building.

BICKNELL'S VILLAGE BUILDER and SUPPLEMENT.

BOUND IN ONE LARGE HANDSOME VOL., 77 PLATES. PRICE, POST-PAID, \$12.



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(REVISED EDITION, 1872)

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COTTAGES, VILLAS, SUBURBAN RESIDENCES, FARM-HOUSES, STABLES AND CARRIAGE-HOUSES, STORE-FRONTS, SCHOOL-HOUSES, CHURCHES, COURT-HOUSES, AND A MODEL JAIL. ALSO, EXTERIOR AND INTERIOR DETAILS FOR PUBLIC AND PRIVATE BUILDINGS, WITH APPROVED FORMS OF CONTRACTS AND SPECIFICATIONS.

CONTAINING FIFTY-SEVEN PLATES, DRAWN TO SCALE, GIVING THE STYLE AND COST OF BUILDING IN DIFFERENT SECTIONS OF THE COUNTRY, BEING AN ORIGINAL WORK, COMPRISING THE DESIGNS OF 16 ARCHITECTS, REPRESENTING THE NEW ENGLAND, MIDDLE, WESTERN, AND SOUTH-WESTERN STATES.
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THE TWO BOOKS IN ONE VOLUME, AS ABOVE, POST-PAID, FOR \$12.

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You ask WHY we can sell First Class 7 Octave Pianos for \$290? We answer—It costs less than \$300 to make any \$600 Piano sold through Agents, all of whom make 100 per cent. profit. We have no Agents, but ship direct to families at Factory price, and warrant 5 Years. Send for illustrated circular, in which we refer to over 500 Bankers, Merchants, &c. (some of whom you may know), using our Pianos, in 44 States and Territories. **U. S. Piano Co., 310 Broadway, N. Y.**

A Great Offer for May!!

HORACE WATERS & SON, 481 Broadway, New York, will dispose of 100 PIANOS and ORGANS of first-class makers, including Waters's, at EXTREMELY LOW PRICES FOR CASH THIS MONTH. New 7-octave PIANOS, modern improvements, for \$25 cash. THE WATERS CONCERTO PIANO ORGANS are the most beautiful in style and perfect in tone ever made. Prices at bargain, for cash. Monthly installments received, running from one to three years. Illustrated Catalogue mailed.

20 Sheets of Choice Music, \$1.00.

Why throw away money on high-priced Music when you can select from our Catalogue of 700 pieces? Any 20 Half-Dime, or 10 of Dime Series, mailed on receipt of One Dollar. Sold by all booksellers, and can be ordered through any newsdealer. Send stamp for Catalogue. Address

BENJ. W. HITCHCOCK, Publisher,
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WEST	NORTH.		EAST
	A NEW and GOOD BOOK for AGENTS! Thoroughly national in its character, and beautiful & illustrated. Terms liberal. Send for circular. JOHNSON, WILSON & CO., 7 Beekman Street, N. Y. City.		
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HALF A MILLION COPIES SOLD. This Book has just been carefully revised, enlarged, and improved, with Dyer's Log-Book added, and it is now the most full and complete book of its kind ever published. It gives correct measurement for all kinds of lumber, logs, plank, cubical contents of square and round timber, stave and heading bolt tables, wages, rent, board, capacity of cisterns, cordwood tables, interest, etc., and has become the Standard Book throughout the United States and Canada. *It sure and get the New Edition, with Dyer's Log-Book.* Ask your bookseller for it, or I will send one for 35 cents, post-paid. **G. W. FISHER, P. O. Box 238, Rochester, N. Y.**

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The well-known Original and Popular Nos.

303 404 170 351,
having been assumed by other makers, we desire to caution the public in respect to said imitations.

JOS. GILLOTT & SONS,
91 John Street, New York.

SEYMOUR'S SHEARS & SCISSORS. "The Best are the Cheapest."

Extra Quality. Crocus Polish.

Family Size, - - \$1.50
Ladies' Scissors, - 1.00
By mail, prepaid. Send P. O. Order or Draft.
HENRY SEYMOUR & CO., 29 Rose St. New York.

50c. TO \$1 PER GALLON. COTTAGE COLOR PAINTS.

E. G. KELLEY'S Patent Metallic Paints, Ground in Oil and Mixed Ready for Use. Fifty cents to \$1 per gallon. Send for card of colors.
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Breech-Loading Shot Guns, \$40 to \$50. Double Shot Guns, \$30 to \$40. Single Shot Guns, \$20 to \$30. Rifles, \$30 to \$40. Revolvers, \$5 to \$10. Pistols, \$1 to \$3. Gun Material, Fishing Tackle, &c. *Ladies' dressings to 4 dollars or more.* Army Guns, Revolvers, etc., bought or traded for. Goods sent by express C.O.D. to be examined before paid for.

AGENTS and Peddlers for our Press and Strainer. Presses and strainers for jams, jellies, herbs, vegetables, hard tallow, meats, cheese, &c. Quick and profitable. Over 60,000 sold in a few localities. Every family wants it. *Send for circular and other established agents are finding this very profitable.* Circulars free.
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AGENTS WANTED to sell our useful Household articles needed by every man and woman. Large profits—quick sales. Send for circulars.
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Valuable Premiums.

ANY ONE can, with but little time and trouble, collect a small or large club of subscribers, for either **American Agriculturist** or **Hearth and Home**, or both, and receive therefor one of the very excellent articles in the Premium List given in the adjoining table. Over 14,000 persons have secured one or more of them, and they have almost universally given great satisfaction to those receiving them. In making up premium lists you can promise every subscriber for 1873, **A Beautiful Picture worth many times the Subscription Price.** (See particulars about the Pictures elsewhere in this paper.)

The **American Agriculturist** is everywhere known and approved. **HEARTH and HOME** is now without a superior in the world as a splendidly illustrated Weekly Newspaper, for real value, cheapness, and adaptability to every home in America. The papers are entirely different. Taken together, they supply over \$25,000 worth of fine engravings, and more good reading than can be found in fifty books costing one Dollar each.

Premium Clubs can be made up of subscribers to either paper, or partly of one and partly of the other, as noted over the Table. We call especial attention to the last column of figures, showing the small number of names required where both papers are taken, at the reduced price of \$4 a year.

You, Reader, can get a Premium. TRY IT.

Explanatory Notes.

N. B.

Read and carefully

Note the following items:

(a) All subscribers sent by one person count, though from one or a dozen different Post-offices. But... (b) Tell us with each name or list of names sent, that it is for a premium.... (c) Send the names as fast as obtained, that the subscribers may begin to receive the paper at once. You can have any time, from now until July 1st, to fill up your list.... (d) Send the exact money with each list of names, so that there may be no confusion of money accounts.... (e) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers.... (f) Specimen Numbers, Cards and Circulars will be supplied free as needed by canvassers, but they should be used carefully and economically, as they are very costly.... (g) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and register put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk; otherwise it is not.

(In the following table is given the price of each article, and the number of subscribers required to get it free, at the regular rates, \$1.50 a year for **American Agriculturist**, and \$3.00 a year for **Hearth and Home**; also at the club rates of \$1 and \$2.50; also at the rates of \$4 a year for both papers together.) **Descriptions of Premiums will be sent free to applicants.**

N. B.—In all Premium Clubs for either paper, **TWO** copies of **American Agriculturist** (English or German) at \$1.50 each, and **ONE** copy of **Hearth and Home** at \$3.00, will count exactly the same. So also **two** copies of **American Agriculturist** at \$1 each, and **one** copy of **Hearth and Home** at \$2.50, will count exactly the same. In this way Premium Clubs can be made up from the 2d and 4th columns, or from the 3d and 5th, or wholly from the 6th column.

Table of Premiums and Terms, For American Agriculturist, and for Hearth and Home, for the Year 1873. Open to all—No Competition.		American Agriculturist only. Number of Sub- scribers required at or at \$1.50 \$1.		Hearth and Home only. Number of Sub- scribers required at or at \$3.00 \$2.50		Both Papers together. Number of Sub- scribers required at or at \$4.00	
No.	Names of Premium Articles.	Price of Premiums.					
1	Knives and Forks (Puttersen Bros.)	\$15 00	22	75	11	28	13
2	Knives and Forks (do. do.)	\$20 00	30	102	15	51	17
3	French Cook's Knife, Fork, and Steel	\$5 50	14	40	8	20	8
4	Pocket Knife (Meriden Cutlery Co.)	\$4 25	10	24	6	17	7
5	Pocket Knife (do. do.)	\$2 00	6	22	4	11	4
6	Pocket Knife (do. do.)	\$2 75	7	27	5	11	4
7	Ladies' Pocket Knife (do. do.)	\$2 00	6	22	4	11	4
8	Mutton in Farro Knife (do. do.)	\$3 50	8	30	5	15	6
9	Cake Basket (Lucius Hart Man'g Co.)	\$12 00	10	35	10	33	11
10	Revolving Butter Cooler (do. do.)	\$8 00	10	35	10	33	11
11	Card Receiver (do. do.)	\$7 00	10	35	10	33	11
12	Nat-ticks and Crackers (do. do.)	\$12 00	19	65	10	33	11
13	Half-Dozen Napkin Rings (do. do.)	\$3 00	16	52	8	28	9
14	One Dozen Teaspoons (do. do.)	\$6 00	15	45	8	28	9
15	One Dozen Tablespoons (do. do.)	\$12 00	19	65	10	33	11
16	One Dozen Table Forks (do. do.)	\$12 00	19	65	10	33	11
17	Chips' Cup (do. do.)	\$2 75	7	27	4	11	4
18	Gilt Pen, Sil. Case (George F. Laurer)	\$3 25	8	30	5	15	6
19	Gilt Pen and Silver Case (do. do.)	\$5 00	12	37	7	19	8
20	Gilt Pen, Handle gold-tipped (do. do.)	\$5 00	15	45	8	28	9
21	Ladies' Gold Pen and Rubber Case (do. do.)	\$6 00	15	45	8	28	9
22	Pyramid Pat. Revolving Level (do. do.)	\$1 50	4	6	3	1	1
23	Pyramid Pat. Revolving Level (do. do.)	\$1 50	4	6	3	1	1
24	Pyramid Pat. Indelible Ink	\$5 00	3	10	2	6	2
25	Coras Floral Set (Moore Man'g Co.)	\$1 00	3	10	2	6	2
26	Steam Engine	\$1 00	3	10	2	6	2
27	Gaylen Seeds & Flower Lubrication	\$2 00	6	22	4	11	4
28	Sewing Machine (Egner & Laker)	\$35 00	10	35	10	33	11
29	Sewing Machine (Florence)	\$35 00	10	35	10	33	11
30	Sewing Machine (Willcox & Gibbs)	\$35 00	10	35	10	33	11
31	Sewing Machine (Willcox & Gibbs)	\$35 00	10	35	10	33	11
32	Bickford Family Knitting Machine	\$25 00	18	60	10	33	11
33	Washing Machine (Doyle's)	\$12 00	19	65	10	33	11
34	Clothes Wringer (Post-Union)	\$9 00	17	54	9	29	10
35	Melodion, Sacture (G. A. Prince & Co.)	\$12 00	19	65	10	33	11
36	Pyramid Pat. Revolving Level (do. do.)	\$1 50	4	6	3	1	1
37	Pyramid Pat. Revolving Level (do. do.)	\$1 50	4	6	3	1	1
38	Silver Watch (American Watch Co.)	\$40 00	10	35	10	33	11
39	Ladies' Fine Gold Watch (do. do.)	\$100 00	110	350	15	55	21
40	Breech-loading Pocket Rifle	\$16 00	24	80	12	40	13
41	Double-barrel Gun (Cooper, Harris & Co.)	\$20 00	24	80	12	40	13
42	Charles Pratt's Arrow Oil (Am. Oil Co.)	\$8 75	9	32	6	16	6
43	Hand Cultivator & Weeder (Comstock)	\$9 00	17	54	9	29	10
44	American Submerged Pump	\$15 00	22	75	11	38	13
45	Family Scales (Fairbanks & Co.)	\$14 00	21	70	11	35	12
46	Building Blocks (Crandon)	\$2 00	5	20	3	10	4
47	Boys' Gun Boat (works by Steam)	\$2 00	6	22	4	11	4
48	War-caster's Great Illustrated Dictionary	\$10 00	18	58	9	29	10
49	Any back Volume American Agriculturist	\$1 75	20	70	10	35	11
50	Any Two Back Volumes do.	\$2 50	25	85	12	42	14
51	Any Three do. do. do.	\$3 00	30	100	14	48	16
52	Any Four do. do. do.	\$3 50	35	115	16	52	18
53	Any Five do. do. do.	\$4 00	40	130	18	58	20
54	Any Six do. do. do.	\$4 50	45	145	20	64	22
55	Any Seven do. do. do.	\$5 00	50	160	22	70	24
56	Any Eight do. do. do.	\$5 50	55	175	24	76	26
57	Any Nine do. do. do.	\$6 00	60	190	26	82	28
58	Any Ten do. do. do.	\$6 50	65	205	28	88	30
59	Any Eleven do. do. do.	\$7 00	70	220	30	94	32
60	Any Twelve do. do. do.	\$7 50	75	235	32	100	34
61	Any Thirteen do. do. do.	\$8 00	80	250	34	106	36
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63	Any Fifteen do. do. do.	\$9 00	90	280	38	118	40
64	Any Sixteen do. do. do.	\$9 50	95	295	40	124	42
65	Any Seventeen do. do. do.	\$10 00	100	310	42	130	44
66	Any Eighteen do. do. do.	\$10 50	105	325	44	136	46
67	Any Nineteen do. do. do.	\$11 00	110	340	46	142	48
68	Any Twenty do. do. do.	\$11 50	115	355	48	148	50
69	Any Twenty-one do. do. do.	\$12 00	120	370	50	154	52
70	Any Twenty-two do. do. do.	\$12 50	125	385	52	160	54
71	Any Twenty-three do. do. do.	\$13 00	130	400	54	166	56
72	Any Twenty-four do. do. do.	\$13 50	135	415	56	172	58
73	Any Twenty-five do. do. do.	\$14 00	140	430	58	178	60
74	Any Twenty-six do. do. do.	\$14 50	145	445	60	184	62
75	Any Twenty-seven do. do. do.	\$15 00	150	460	62	190	64
76	Any Twenty-eight do. do. do.	\$15 50	155	475	64	196	66
77	Any Twenty-nine do. do. do.	\$16 00	160	490	66	202	68
78	Any Thirty do. do. do.	\$16 50	165	505	68	208	70
79	Any Thirty-one do. do. do.	\$17 00	170	520	70	214	72
80	Any Thirty-two do. do. do.	\$17 50	175	535	72	220	74
81	Any Thirty-three do. do. do.	\$18 00	180	550	74	226	76
82	Any Thirty-four do. do. do.	\$18 50	185	565	76	232	78
83	Any Thirty-five do. do. do.	\$19 00	190	580	78	238	80
84	Any Thirty-six do. do. do.	\$19 50	195	595	80	244	82
85	Any Thirty-seven do. do. do.	\$20 00	200	610	82	250	84
86	Any Thirty-eight do. do. do.	\$20 50	205	625	84	256	86
87	Any Thirty-nine do. do. do.	\$21 00	210	640	86	262	88
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90	Any Forty-two do. do. do.	\$22 50	225	685	92	280	94
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97	Any Forty-nine do. do. do.	\$26 00	260	790	106	322	108
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100	Any Fifty-two do. do. do.	\$27 50	275	835	112	340	114
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103	Any Fifty-five do. do. do.	\$29 00	290	880	118	358	120
104	Any Fifty-six do. do. do.	\$29 50	295	895	120	364	122
105	Any Fifty-seven do. do. do.	\$30 00	300	910	122	370	124
106	Any Fifty-eight do. do. do.	\$30 50	305	925	124	376	126
107	Any Fifty-nine do. do. do.	\$31 00	310	940	126	382	128
108	Any Sixty do. do. do.	\$31 50	315	955	128	388	130
109	Any Sixty-one do. do. do.	\$32 00	320	970	130	394	132
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143	Any Ninety-five do. do. do.	\$49 00	490	1480	198	598	200
144	Any Ninety-six do. do. do.	\$49 50	495	1495	200	604	202
145	Any Ninety-seven do. do. do.	\$50 00	500	1510	202	610	204
146	Any Ninety-eight do. do. do.	\$50 50	505	1525	204	616	206
147	Any Ninety-nine do. do. do.	\$51 00	510	1540	206	622	208
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149	Any One Hundred and one do. do. do.	\$52 00	520	1570	210	634	212
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152	Any One Hundred and four do. do. do.	\$53 50	535	1615	216	652	218
153	Any One Hundred and five do. do. do.	\$54 00	540	1630	218	658	220
154	Any One Hundred and six do. do. do.	\$54 50	545	1645	220	664	222
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159	Any One Hundred and eleven do. do. do.	\$57 00	570	1720	230	694	232
160	Any One Hundred and twelve do. do. do.	\$57 50	575	1735	232	700	234
161	Any One Hundred and thirteen do. do. do.	\$58 00	580	1750	234	706	236
162	Any One Hundred and fourteen do. do. do.	\$58 50	585	1765	236	712	238
163	Any One Hundred and fifteen do. do. do.	\$59 00	590	1780	238	718	240
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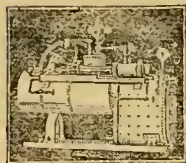
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AMERICAN AGRICULTURIST

FOR THE

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NEW YORK, JUNE, 1873.

NEW SERIES—No. 317.



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Calendar for June.

Day of Month.	Day of Week.	Boston, N. Eng., N. York State, Mich., Wiscon- sin., Iowa, and Oregon.			N. Y. City, Cl., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken- tucky, Missour- i, and Cal- ifornia.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
1	M	4:26	7:30	0:10	4:32	7:24	0:5	4:37	7:19	morn
2	T	4:25	7:31	0:33	4:31	7:25	0:34	4:37	7:19	0:30
3	W	4:25	7:32	1:1	4:31	7:26	1:0	4:36	7:20	0:50
4	Th	4:24	7:32	1:23	4:30	7:26	1:23	4:36	7:20	1:21
5	F	4:23	7:33	1:43	4:30	7:27	1:42	4:35	7:21	1:42
6	S	4:23	7:33	2:2	4:29	7:27	2:2	4:35	7:21	2:2
7	S	4:23	7:33	2:49	4:29	7:28	2:49	4:35	7:22	2:47
8	M	4:23	7:35	rises	4:28	7:29	rises	4:34	7:23	rises
9	T	4:23	7:35	7:46	4:28	7:30	7:40	4:34	7:24	7:31
10	W	4:23	7:36	8:54	4:28	7:30	8:51	4:34	7:24	8:44
11	Th	4:23	7:37	9:14	4:28	7:31	9:43	4:34	7:25	9:41
12	F	4:23	7:37	10:43	4:28	7:31	10:25	4:34	7:25	10:31
13	S	4:23	7:38	11:21	4:28	7:32	11:16	4:34	7:26	11:12
14	S	4:23	7:38	11:53	4:28	7:32	11:49	4:34	7:26	11:46
15	M	4:23	7:38	morn	4:28	7:33	morn	4:34	7:26	morn
16	T	4:23	7:39	0:29	4:28	7:33	0:18	4:34	7:27	0:16
17	W	4:23	7:39	0:41	4:28	7:33	0:42	4:34	7:27	0:42
18	Th	4:23	7:40	1:7	4:28	7:33	1:8	4:34	7:27	1:9
19	F	4:23	7:40	1:31	4:28	7:33	1:33	4:34	7:27	1:36
20	S	4:23	7:39	1:53	4:28	7:34	2:2	4:35	7:28	2:6
21	S	4:23	7:39	2:30	4:28	7:34	2:35	4:35	7:28	2:40
22	M	4:23	7:40	3:0	4:29	7:34	3:15	4:35	7:28	3:21
23	T	4:23	7:40	sets	4:29	7:34	sets	4:35	7:28	sets
24	W	4:23	7:40	8:32	4:29	7:34	8:45	4:35	7:29	8:38
25	Th	4:23	7:40	9:33	4:29	7:35	9:27	4:35	7:29	9:21
26	F	4:21	7:40	10:9	4:29	7:35	10:4	4:36	7:29	9:50
27	S	4:21	7:40	10:39	4:29	7:35	10:35	4:36	7:29	10:31
28	S	4:21	7:40	11:4	4:30	7:35	11:1	4:36	7:29	10:58
29	M	4:25	7:40	11:23	4:31	7:35	11:24	4:37	7:29	11:23

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHICAGO.	ST. LOUIS.	CHICAGO.
1st Quart	h. 1:55 m.	1:23 m.	1:11 m.	0:59 m.	0:29 m.	0:29 m.
Full M'n	10:5 17 v.	5:5 5 v.	4:53 v.	4:41 v.	4:11 v.	4:11 v.
3rd Quart	17:40 18 m.	10:36 m.	10:24 m.	10:13 m.	9:43 m.	9:43 m.
New M'n	24:4 28 v.	4:16 v.	4:4 v.	3:52 v.	3:25 v.	3:25 v.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1873.

To a good, thrifty farmer, whose land is drained, clean, and rich, June is one of the pleasantest months in the year. To the farmer who is behind-hand with his work, who is planting corn when he ought to be cultivating it, and who is hoeing when he should be haying, the warm, growing weather of June gives little ground for hope or encouragement. "A stern chase is a long chase." If the season once gets ahead of you, it is almost impossible to catch up with your work. Every farmer knows this from experience, but it is a lesson some of us are slow to learn.

In chaffing hay with a railway horse-power, set at a given elevation, the lighter you feed the faster will the horses be obliged to travel, and the more hay will you cut. If the knives are dull, or you feed a little too fast, you slow the motion, and you will not accomplish half the work that you would if the knives were sharp and you fed lighter. Push the hay into the machine a little faster, and you lessen your power still more, and the slightest impediment, even a single corn-stalk, will stop it altogether. And so it is with farm work. If you get behind-hand, the least impediment will check your progress. The "season" is the railway horse-power. The less you tax it the more it will do for you. Men, ignorant of the principle of a railway horse-power, when they find the motion slowing yell at the horses—"Get up there, get up"—not knowing that the horses are in no wise to blame, but that the fault is in their feeding too hard.

To grumble at the season is equally unreasonable. A man who keeps his machine well oiled and the knives sharp, and who feeds steadily, will cut three times as much hay as the man who wastes one-third of his power by dull knives and unnecessary friction and another third by slowing the motion. And so it is in farming. On drained land a soaking rain makes easier plowing; on the wet land it stops plowing altogether, and by the time the sun has evaporated the water the land is hard to plow, and turns up cloddy. The season is not at fault. No season ever suits wet land. The remedy is either to drain or not plow at all. We need not carry out our illustration. We all know how discouraging a thing it is to work poor, weedy,

undrained land. No farmer on such land can be blamed for being behind-hand with his work. He is to blame only if he is content with such a system of farming, and makes no efforts to drain, enrich, and clean his land.

Hints about Work.

The Season is Late, and much land is yet to be planted.

What shall we do with it?—No farmer likes to change his plans, but it is sometimes, though not often, wise to do so.

Land Intended for Corn, but which you have not been able to plant, may be summer-fallowed; or it may be planted with beans, or sown with turnips or buckwheat; or if none of these plans suit it may still be planted with corn.

Early Corn is best for late planting.

Soak the Seed for 24 or 36 hours, changing the water every eight or ten hours.

If the Soil is Moist and Mellow, soaked seed will be up in two days, and the plants, now that the weather is warm, will grow rapidly from the start.

One of the Essentials of good corn culture is thus secured—a vigorous and healthy young plant.

If the Ground can not be got in Good Condition, better give up the idea of planting corn. It is a crop that requires too much labor to make its culture profitable except under favorable conditions.

With Potatoes there is even a still greater necessity for planting at the proper time, and for having the land in good order. It is a crop that requires much labor per acre, and it is specially important to get a large crop per acre. It will cost as much to plant, cultivate, and dig an acre of potatoes that yields 75 bushels per acre as one that yields 150 bushels.

One of the Best Crops of Potatoes we ever raised was not planted until the first week in June—but the land was rich and in good order.

Beans have been a very profitable crop with farmers who make a business of growing them, and who take pains to have all the conditions favorable. They may be sown any time this month—the earlier the better, provided the land is in good order. We plant in rows 2 ft. 5 in. apart, and drop three to five beans in a hill one foot apart in the rows. Cover from one to two inches deep, according to the size of the beans—the larger the deeper.

Turnips require rich soil and the best of culture. The reason so many fail to grow satisfactory crops of roots is because the land is not properly prepared. The soil can not be made too mellow.

Mangel-Wurzel should have been sown last month, but if the land is in good order, and not too dry, the seed may be soaked for two or three days, and when this is done it is not too late to sow this crop.

Ruta-Bagas or Swede Turnips may be sown any time this month. If possible, drill them in immediately after the last plowing. Use plenty of seed, say two pounds per acre. Thin out as soon as the plants are in the rough leaf.

The Best Remedy for the "Fly" or Beetle is good, moist, mellow soil, and a dressing of 200 lbs. of superphosphate of lime per acre. The latter has a wonderful effect in pushing the young plants.

Dusting the Plants with Slaked Lime, plaster, and ashes in the morning, while the dew is on, will check the ravages of the beetle and otherwise benefit the crop.

Air-Slaked Lime is good for this purpose, but, contrary to common opinion, it is no better than fresh water-slaked lime—and, in fact, if there is any difference, the latter is the more caustic. Three bushels of lime, two bushels of plaster, and ten bushels of wood-ashes would be about the proper quantity per acre—but more will do no harm. The ashes must be dry, so that they will adhere to the leaves. If you have not ashes, put on lime and plaster alone.

Killing Weeds is the great labor of the month. And let it be understood that unless the season is

unusually wet the farmer who does not keep down the weeds deserves all the evils that flow from foul land and poor crops.

We have the *Best Climate in the World* for killing weeds, but few of us live up to our privileges.

A *Good Cultivator*, aided by our dry winds and hot sun, will kill young weed plants by the million. The main thing is to commence early before the weeds get possession of the soil, and continue to stir the soil as often as any new weeds appear.

A *Harrow* on mellow soil, and while the weeds are in the seed-leaf, is often a more effective implement for killing weeds than an ordinary cultivator. It leaves the young plants more on the surface, where the sun can wither them up and destroy their vitality.

In *Corn and Potatoes* we have used the Thomas harrow with decided advantage. It may pull up or smother a few hills of corn, but such a loss is nothing as compared with the saving in hoeing. We are not sure that a light harrow, with fine, straight teeth would not be equally effective.

Corn will probably be much higher next year than at present, and it will be well to take good care of the growing crop. All that can now be done is to cultivate it thoroughly.

Stirring the Soil, unless it is a very light sand, tends to keep it moist. It develops plant-food, and makes the land richer. It kills weeds, and it is now well known that so far from "shading the ground and keeping it moist," all growing plants pump up and evaporate large quantities of water.

Summer-Fallows are rarely necessary on light, sandy soils. We can kill the weeds by the frequent use of the cultivator in corn, potatoes, beans, and other hoed crops.

On *Heavy Clay Land*, a good summer-fallow will often prove one of the best means of cleaning the soil and enriching it at the same time. On such land it is usually better to plow two or three times rather than to plow only once, and depend on the cultivator to keep down weeds and mellow the surface. It is true that many good farmers adopt the latter practice with decided advantage for the time being. Whatever plan is adopted, make as many weeds grow as possible, and then kill them.

Get Ready for Haying.—See that the mower is in complete repair, and if any extras are required order at once. Look to the rakes, hay-racks, unloading fork and tackle.

Early Cut Hay is confessedly better for milk-giving animals than ripe hay. For new milk-cows and ewes with lambs it is very desirable to cut a few tons of clover just before it gets into full blossom. It will not yield as much per acre as if allowed to stand until the blossoms begin to turn brown, and the hay may not be so nutritious for fattening stock, but it is more succulent and more easily digested, and when fed in connection with a little meal will produce more milk.

Keep the Implements Under Cover, or if this can not be done wash or paint them with petroleum. Saturate all the wood-work. The more you can get it to absorb the better.

Animals in the hurry of a busy season are apt to be neglected. Do not fall into this error. The success of a good farmer depends more on his skill and judgment in the management of his live-stock than on the mere raising of crops.

Horses should not be taxed beyond their strength. Heavy plowing should be done with three horses abreast. It is a very effective team. We keep horses too long in the field. They would accomplish more by working steadily while at work, and being allowed longer to feed and rest in the stable.

Grooming is of great importance. It is to a horse what a good bath is to a man. It is absolutely essential to high health. Never leave a horse for the night until he is thoroughly cleaned.

A *Little Meal in the Water* is a capital thing for horses at noon, and night when they come home tired—say a pint of meal in a pail of water.

In case of *Colic*, the first thing to do is to give an injection of water. It is not necessary to put soap

or anything else in it. Blanket the horse, rub his legs, ears, and bowels, and if he does not get better in half an hour give a table-spoonful of laudanum and two table-spoonfuls of ether.

Cut Feed is certainly more economical than uncut. Whether it is healthier or otherwise depends much on whether the horses are allowed to rest after eating.

Indigestion is the cause of more than half the diseases of horses, and we should be careful to feed properly and regularly, and especially to avoid putting the horses to hard work on a full stomach.

Milk-cows should now be giving a full flow of milk. If there is the slightest symptoms of a falling off, give a little extra feed in the form of corn-meal and bran-slops. Corn is cheap, and if the cows can convert one, two, or three quarts of meal into milk it will be very profitable. See that the cows are milked regularly and clean.

Sheep should have their hoofs pared, and every sheep in the flock have its feet dressed with carbolic acid to prevent foot-rot. Dip the lambs, after the ewes are sheared, in a solution of carbolic soap to kill ticks. The ewes and lambs should have the best pasture on the farm—but let it be dry upland. Low land is death to sheep. Suckling ewes, especially, require constant access to water. Have a pen in the field into which the lambs can enter, and feed them a few oats or other grain separately from the ewes. It is a great help to them.

Scours in Lambs indicate that the flock needs a change of pasture. Always let sheep have access to a little dry hay. They will eat it if they need it, and it will do them a great deal of good. Milk-porridge, made with wheat-flour and milk—say a pint of fresh skimmed milk and a table-spoonful of flour, well boiled—is a capital remedy for mild cases.

Do not neglect to tag the lambs whenever needed. Salt regularly, or better still, let the sheep have access at all times to the salt. They will then never eat enough to scour them.

Swine are looking up. In the great corn-growing sections of the country there is no stock that pays so well at present prices as good pigs, and the prospects are favorable for a considerable advance. Feed liberally. Nothing is better than a good clover pasture; but it is a great mistake not to give grain in addition. Save all the milk for the young pigs. Pigs five or six months old get along very well without milk, but for young pigs, two to four months old, there is nothing so good as skimmed milk. Give more or less grain in addition. Push the little pigs all you can. It will pay. See that all swine have access to fresh water. If confined, give ashes, salt, sulphur, and charcoal. Keep the pens and troughs clean. Dry earth is a cheap disinfectant. Use it freely.

Work in the Horticultural Departments.

The late spring has crowded much work into this month which ought to have been attended to last, and many gardeners have been late in planting in both the orchard and garden. The hot weather of summer is, however, now upon us, and so sudden has been its advent that a great deal of effort will be necessary in order to keep pace with the season. Weeds are sure to surpass the vegetables in growth, and a continual contest must be waged against them in order to prevent injury to the young seedlings. If the soil was kept free from weeds during the last season, less trouble will be needed to prevent their growth this. The ground is now so thoroughly warmed through that seeds sown in it will germinate at once, and it is not yet too late to sow some varieties of flower and vegetable seeds, and get a good return from them. Many early vegetables and fruits will now be ready for use, and flowering plants will make the garden attractive.

Orchard and Nursery.

Grafts set in the spring will need attention, and where more than one was put in remove the extra ones if necessary.

Pruning.—Many fruit-growers prefer June for cutting out large limbs, as wounds made now heal very readily, while others contend that too much foliage is removed so that growth is checked. If the trees were properly pruned when young they will not require a great amount of cutting now.

Thinning is seldom practiced to any extent in this country, and the result is that trees seldom bear good crops two years in succession. If one third or one half of the fruit is thinned out after it has fairly set, the remainder will be of good size and really first-class fruit, and a much higher price will be realized from this than if the whole had been allowed to grow.

Pinching the growing shoots of a young tree will give the weaker ones a chance to grow, and thus secure for it a good shape.

Young trees will need special care in trimming in order to avoid too vigorous growth, and the consequent necessity of severe pruning when large. If they were planted out this spring give a mulch so that they may not dry out when the hot weather of mid-summer comes.

Seedlings require a good deal of attention in order to keep them growing vigorously, and to keep down the young weeds.

Slugs.—If troublesome upon the leaves of pear and cherry trees destroy by a dusting of lime.

Insects must not be neglected, and a constant lookout must be kept for all enemies upon the fruit-trees. If a tent-caterpillar's web appears destroy at night or in the morning; if on a small twig the best way is to cut off the twig and burn; when upon a large limb remove the nest with a gloved hand.

Curculio.—Where this pest exists the only way to fight it is to spread a sheet under the tree and jar the tree and catch the insects upon it, when they may be burned or put into boiling water.

Borers.—The most effective way to prevent them from laying their eggs, which are usually laid this month, is to wrap the trunk with coarse paper, with the lower edge just below the surface of the soil.

Fruit Garden.

Blackberries.—The fruiting canes should be tied up to stakes, and all suckers not needed hoed up. Pinch the ends of the new canes when they have reached a height of 4 or 5 feet.

Raspberries.—Remove all but 3 or 4 new shoots from each plant, and tie up to stakes or wires.

Dwarf Fruit-Trees will need attention to insure a good form. Thin out the fruit, and pinch those shoots which grow too vigorously.

Gooseberries are most profitable when marketed green. The fruit may be cleared of leaves and sticks by rolling it down an inclined trough.

Grape-Vines planted this spring should only be allowed to grow one shoot. Thin out a portion of the fruit on the bearing vines; this should be done early so that the vines may not be exhausted. Apply sulphur with a bellows on the first appearance of mildew. Layers may be made of the present season's growth.

Currants.—A good mulch will save time in weeding, and also increase the size of the fruit. Apply powdered white hellebore to the leaves when attacked by the currant worm.

Strawberries if not already mulched should be attended to at once, so that the fruit may be kept free from grit. Keep newly planted beds free from weeds and hoed often to insure a good growth before the hot weather comes.

Kitchen Garden.

The great enemies of the gardener as well as farmer, viz., weeds, should be destroyed at the outset, as when young they may be easily kept down if the ground is constantly stirred. One of the best and most effective implements in use is the wheel-hoe described in December, 1871. A rake is also a very excellent implement when used just as the weeds have shown themselves above ground.

Asparagus.—Do not cut too long, and remember

that next year's crop is dependent upon a good growth of tops after the cutting has stopped. Keep down the weeds, and put on bone or phosphate.

Beans.—It is not yet too late to plant bush sorts for late snaps, and Limas may now be planted with good prospects for a crop should the frost not come too early in the fall. Set the poles 4 feet apart each way, and give the hills a liberal dressing of well rotted manure.

Beets.—Weed and use the thinnings as spinach.

Cabbages and Cauliflowers.—The early sorts will now be ready for table or market. Sow seed for late, and transplant from the seed-beds to open ground for second early.

Carrots sown early should be hoed and thinned, and seed sown for the late crop.

Celery.—See that the plants in the seed-bed are kept clear of weeds.

Corn.—Sow every two weeks for a succession, using only early sorts for the late sowings.

Peppers.—Set out in a warm, rich place, and cultivate frequently.

Cucumbers.—Sow seeds in hills four feet apart, using plenty of seeds to allow for those plants destroyed by the bugs.

Egg-Plants.—Do not plant out until settled warm weather. Give frequent hoeing, and occasional waterings of liquid manure.

Letuce.—It is of little use to sow seed now unless one has a cool situation where the sun does not fall upon the plants for long at a time.

Onions.—Constant hoeing and weeding are necessary in order to insure a good crop, and a dressing of wood-ashes is very beneficial.

Parasnips.—Cultivate until the leaves cover the ground so as to prevent working.

Peas may be planted now, though they are likely to mildew.

Rhubarb.—Cut off all flower-stalks as they soon exhaust the plants.

Ruta bagas. Sow seed in well manured drills the latter part of the month, and if insects appear sift ashes or plaster upon the young plants. The Long White French is best for table use.

Spinach.—Sow New Zealand for summer use; make the hills 4 feet apart in rich soil allowing three or four plants to each hill.

Salsify and Scorzonera.—Cultivate the same as parsnips.

Sweet-Potatoes.—Prepare the ridges as directed last month, and set out the plants at once. Keep them growing, and do not allow the vines to root.

Tomatoes.—Provide same kind of support for the vines to grow upon, and cut back freely; the fruit will be much finer than if the vines are allowed to grow at will.

Flower-Garden and Lawn.

In this department there will be plenty to do in order to keep everything looking neat.

Lawns will require cutting every week or ten days in order to present a good appearance. It is best to leave the clippings upon the lawn as they will serve in a measure to protect the roots of the grass from the sun; if cut often the cut grass will not be seen for more than a day at most.

Bedding Plants must be attended to, as the weather has now become so mild that they will grow at once if planted out, provided they have been properly hardened off before removing from the greenhouse.

Annals.—Transplant from the seed-bed and sow seed for succession at once.

Bulbs should not be removed until the leaves begin to turn yellow, when they may be taken up and spread under cover to dry; when perfectly dry store in a cool, dry place until next fall.

Walks.—Keep the grass edgings at the sides of the walks and drive-ways cut and trimmed. The walks should be kept clear of weeds, and rolled occasionally to preserve the firmness.

Neatness.—The various surroundings of the house

and lawn must be kept neat in order to preserve a good appearance. Plants should be tied to stakes, and all unsightly flower-stalks removed.

Greenhouse and Window-Plants.

Unless a great deal of care is used in removing plants to the borders, the greenhouse will not present a very attractive sight during the summer. There are, however, many plants which will prove much more satisfactory if kept inside, and with a little pains an excellent show may be made. If any plants are plunged in the border, place a little coal-ashes under the pot to prevent the worms from entering. Look out for a good supply of sods to stack up to decay and form soil to be used for potting.

Commercial Matters—Market Prices.

Gold has been as low as 116½, and as high as 118½—closing May 12th at 118½, as against 119 on April 12th. There has been more activity in Breadstuffs since our last. The home trade inquiry has been fair, and the export demand good. Holders have been offering stocks quite freely, and prices in most instances have been quoted lower. Toward the close, desirable lots of shipping Flour, prime Wheat and Oats, dry samples of Corn and Rye, were quoted steadily in price, with more call for prompt delivery. Barley has declined materially, and closed dull. Cotton has been easier in price and a restricted business. Wool has been more active, but at low rates. Holders have shown considerable eagerness to market supplies of both domestic and foreign. Toward the close the market was rather steadier, on less urgent offerings of stock. Provisions have been quoted cheaper on a less active trade. Tobacco, Hay, Straw, and Seeds, have been moderately sought after. Hops dull at reduced quotations.

CURRENT WHOLESALE PRICES

	April 12.	May 13.
PRICE OF GOLD	119	118½
Flour—Super to Extra State	\$6 00 @ 8 25	\$5 65 @ 8 25
Super to Extra Southern	6 10 @ 12 15	6 10 @ 12 50
Extra Western	6 90 @ 12 75	6 65 @ 12 50
Extra Genesee	8 20 @ 10 50	8 25 @ 10 50
Superfine Western	6 10 @ 6 60	5 65 @ 6 25
Rye Flour	4 10 @ 6 60	4 10 @ 6 40
CORN—MEAL	3 00 @ 3 75	3 15 @ 3 75
WHEAT—All kinds of White	1 85 @ 2 25	1 85 @ 2 30
All kinds of Red and Amber	1 35 @ 2 00	1 30 @ 2 05
CORN—Yellow	63 @ 65½	7½ @ 68½
White	63 @ 65½	7½ @ 68½
OATS—Western	48 @ 56½	50 @ 56½
State—Western	48 @ 56½	51 @ 56½
RYE	81 @ 93	85 @ 100
BARLEY	75 @ 131	70 @ 118
HAY—Blue, 100 lbs	1 00 @ 1 45	75 @ 150
SPRAW, 100 lbs	85 @ 1 20	85 @ 1 10
CLOVER—Middlings, 100 lbs	19½ @ 20½	19½ @ 20
HOPS—Crop of 1873, 100 lbs	40 @ 55	35 @ 50
PRATHERS—Live Geese, 100 lbs	50 @ 75	65 @ 82½
SEED—Clover, 100 lbs	8½ @ 9	8½ @ 9
Timothy, 100 bushels	3 50 @ 3 85	4 50 @ 4 60
Flax, 100 bushels	2 20 @ 2 35	2 25 @ 2 40
SUGAR—Refined & Grocery 100 lbs	17½ @ 10½	17½ @ 9½
Molasses, Cuba, 100 gal	30 @ 40	22 @ 45
New Orleans, 100 gal	55 @ 75	55 @ 80
COFFEE—Rio de Janeiro, 100 lbs	16½ @ 19½	17½ @ 19½
Tobacco, Kentucky, 100 lbs	7½ @ 15	7 @ 15
Seed Leaf, 100 lbs	9 @ 15	9 @ 15
Wool—Domestic, Fleeced, 100 lbs	47 @ 60	32 @ 55
Domestic, pulled, 100 lbs	30 @ 42	28 @ 48
California, 100 lbs	18 @ 34	18 @ 33
TALLOW, 100 lbs	8½ @ 9	8½ @ 9
OLEO-COKE—10 tons	39 50 @ 41 00	37 50 @ 41 00
PORE—Mess, 100 barrel	16 50 @ 17 37½	17 00 @ 17 75
Prime, 100 barrel	12 75 @ 13 00	Nominal
BEEF—Plain mess, 100 lbs	9 00 @ 11 00	9 00 @ 11 00
LARD, in tubs & barrels 100 lbs	8½ @ 9	8½ @ 9½
Butter—State, new 100 lbs	35 @ 47	30 @ 45
Western, 100 lbs	30 @ 40	25 @ 34½
CHEESE	9 @ 16½	6 @ 16½
BRANS—100 bushels	2 00 @ 3 60	1 50 @ 3 00
PEAS—Canada, free, 100 bu	1 25 @ 1 35	1 15 @ 1 45
BOGS—Fresh, 10 dozen	79½ @ 21½	74 @ 16½
POULTRY—Fowls	12 @ 24	14 @ 21
Turkeys—100 lbs	15 @ 24	13 @ 18
Geese, 100 pair	2 00 @ 3 50	1 25 @ 2 50
Ducks, 100 pair	1 00 @ 1 62½	75 @ 1 25
TURNIPS—100 barrel	75 @ 1 50	1 25 @ 2 50
CABBAGES—100	8 00 @ 14 00	8 00 @ 20 00
ONIONS—100 bbl	9 50 @ 10 00	4 10 @ 7 00
BROOM-CORN—100 bu	3 @ 7½	3 @ 7½
APPLES—new, 100 barrel	1 00 @ 3 00	1 25 @ 3 50
POTATOES—100 bbl	1 50 @ 3 62½	1 50 @ 3 50
SWEET POTATOES—100 bbl	3 50 @ 4 00	3 75 @ 4 45
CARROTS—100 bbl	3 00 @ —	3 50 @ 4 00
CELERY—100 doz	1 50 @ 1 75	— @ —
CRANBERRIES—100 bbl	— @ —	4 00 @ 6 00
STRAWBERRIES—100 quart	— @ —	62 @ 75
POTATOES, new Bermuda 100 bbl	— @ —	9 @ 9 50
TOMATOES, 100 crate	— @ —	1 00 @ 1 25
GREEN PEAS, Carolina 100 crate	— @ —	2 00 @ 3 00
RHUBARB—100 doz	— @ —	1 00 @ 1 50
RADISHES—100 doz	— @ —	1 50 @ 2 00
SPINACH—100 bbl	— @ —	1 75 @ 2 50

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending May 13th, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.						
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
25 days 1873.	312,000	619,000	496,000	500	101,000	635,000
25 days 1872.	191,000	267,000	331,000	2,750	59,000	643,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
25 days 1873.	286,000	1,678,000	2,274,000	71,000	147,000	1,512,000
25 days 1872.	291,000	1,795,000	3,336,000	136,160	249,000	1,464,660

2. Comparison with same period at this time last year.

RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
25 days 1873.	312,000	619,000	496,000	500	101,000	635,000
24 days 1872.	181,000	211,600	1,317,000	—	127,000	604,660

SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
25 days 1873.	286,000	1,678,000	2,274,000	71,000	147,000	1,512,000
24 days 1872.	291,000	1,795,000	3,336,000	136,160	249,000	1,464,660

3. Stock of grain in store at New York.

	Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.
bush.	bush.	bush.	bush.	bush.	bush.	bush.
May 5, 1873.	218,223	535,323	27,360	46,764	276,666	181,496
Apr. 7, 1873.	428,904	860,207	55,819	83,680	666,598	118,232
Mar. 10, 1873.	611,197	2,515,892	37,302	295,493	816,596	106,892
Feb. 10, 1873.	805,561	3,189,193	30,580	468,934	939,131	173,100
Jan. 13, 1873.	1,177,359	4,713,951	44,339	511,051	1,367,187	175,845
Dec. 9, 1872.	1,305,975	5,675,720	51,475	624,554	1,466,845	215,836
Nov. 8, 1872.	1,015,553	197,203	211,565	18,093	1,115,032	80,447
April 3, 1872.	1,881,946	421,856	355,430	190,691	78,387	—

4. Exports from New York, Jan. 1 to May 9:

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Peas.
bbls.	bush.	bush.	bush.	bush.	bush.	bush.	bush.
1873.	592,997	1,435,336	3,961,831	49,700	11,530	16,564	24,152
1872.	—	286,731	2,380,246	4,425,213	208,000	9,300	12,388
1871.	—	659,932	3,499,708	1,000,576	17,338	67,903	18,771
1870.	—	335,517	4,003,651	1,902,221	—	—	—
1869.	—	381,380	2,618,890	1,173,231	—	—	—
1868.	—	319,202	1,708,175	2,909,014	153,193	—	36,369

New York Live-Stock Markets.

WEEK ENDING	Deer.	Cows.	Calves.	Sheep.	Swine.	Totl.
April 14th.	7,345	95	1,781	1,451	41,481	48,934
April 21st.	7,215	145	2,945	20,303	41,825	74,160
April 28th.	9,440	80	3,679	20,209	41,254	74,582
May 5th.	9,480	102	3,218	10,089	41,776	64,765
May 12th.	9,214	43	3,710	16,235	44,866	74,166

Total for 5 Weeks.	41,634	470	15,492	81,310	211,202	—
do. for prev. 4 Weeks.	35,708	517	4,769	60,459	148,674	238,177

Average per Week.	Deer.	Cows.	Calves.	Sheep.	Swine.	
do. do. last Month.	8,911	117	151	11,932	15,115	55,913
do. do. prev. 4 Months.	7,199	99	94	19,030	33,263	—

There has been a larger supply during the past than the previous month, but the demand has been greater and prices have been well sustained; the average being ¼c. per lb. off during the last 2 weeks with a much larger run. The quality has been generally fair to good, with fewer Texans, which were mostly of better flesh.

The prices of the past 4 weeks were:

	Range.	Large Sales.	Aver.
April 14.	10 @ 14 c.	11½ @ 13 c.	12 c.
April 21.	10 @ 14½ c.	11½ @ 12½ c.	12 c.
April 28.	10 @ 14½ c.	11½ @ 12½ c.	12 c.
May 5.	9 @ 13½ c.	11½ @ 12½ c.	11½ c.
May 12.	9 @ 14 c.	11½ @ 12½ c.	11½ c.

Milk Cows.—There has been a good demand for choice milkers during the month at \$5 @ \$10 above our quotation to private parties. The bulk of cows sent in were ordinary to good. Prices are \$25 @ \$40 for ordinary, \$50 @ \$65 for fair to good, and \$70 @ \$80 for choice.

Calves.—The prices for both live and dressed veals, have been lower during the past than the previous month. Quotations for live, 7c. @ 10c. ½ lb; dressed, 4c. @ 9c. for poor to good, and 9c. @ 12c. good to choice.

Sheep.—The receipts of sheep are larger. Prices have been quite uniform. Ten car-loads of Texas sheep were received during the past month; they average 75 lbs each, and sold at 4½c. per lb. Quotations are 7c. @ 8½c. for unshorn, and 6½c. @ 6½c. for clipped.

Swine.—The receipts of hogs have been greater, but prices have been firm and steady at 6c. @ 6½c. for live, and city-slaughtered 7½c. @ 8c. for heavy to light weights.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co. Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On American Agriculturist, 3 cents a quarter, in advance; on *Earth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Earth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our

regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

WILL YOU HAVE ONE OF THE VALUABLE PREMIUMS? 1 MONTH MORE.

Read over the list of Excellent Premium articles on page 238. Select one or more that you would like, and you can soon obtain subscriptions enough to secure the Premiums.

One Month Yet Remains—June—during which any person who wishes to obtain one or more of the useful and valuable articles offered in our Premium List (of which a copy will be sent free to any applicant, see page 238) can easily get them. This has already been done by more than 14,000 persons, who during years past have tried with success the raising of Clubs of Subscribers for our papers, and availed themselves of the liberal offers of Premiums made by the Publishers.

We invite all our Subscribers to take hold of this work and secure a Premium while the offer is open. Specimen copies of both papers will be sent to any wishing to show them for this purpose.

Fifteenth Session of the American Pomological Society.

We learn from Col. Marshall P. Wilder, the President of the Society, that the next meeting will be held at Boston on Wednesday, September 10th, and continue for three days. It is very desirable that there should be a full attendance, not only because this will be the Quarter-Centennial Gathering, but for the reason that several important matters will come before the meeting. Liberal premiums will be given upon the fruit exhibited, and various excursions are proposed, and there is every prospect of a pleasant and successful session. Farther particulars will be given later.

Condition Powder.—"Lankford." Probably the most trustworthy condition-powder is Taylor's medicated cattle-food.

Bruised Shoulder.—"Lankford." The inflammation and swelling on a horse's shoulder caused by uneven bearing of the collar may probably be reduced by cold water dressings. If the swelling suppurates and breaks, the wound should be washed with warm water, and a little compound tincture of benzoin be injected into it, after which it will rapidly heal if protected from the air by simple ointment and a covering of cotton cloth. Of course, no collar can be worn until the wound is healed, but if a breast-strap does not interfere with it the horse may do moderate work.

Time to Break a Colt.—"S. F. S." Neoga, Ill. A young colt should be trained from the time he is a few months old. By two years of age he should be used to the harness or the saddle but not be driven or

ridden. Then in his third year he may be mounted or driven without any breaking, and will come naturally and gradually to work. But the training should be constant, regular, and of the gentlest character. He should never be frightened or teased or ill-used.

Navy Beans.—"S. F. S." Neoga, Ill. The soil best adapted for beans is a light, loamy one, not too rich, but clean and free from weeds. They should be planted in hills 24 inches apart or in drills 27 or 30 inches apart, and 13 inches apart in the drill; five or six beans may be dropped in a hill. The crop needs sufficient cultivation to keep the ground clean, but they should not be hoed or cultivated while wet with rain. They are harvested by pulling the plants when the beans are ripe, and stacking them up around a pole five feet long, laying the bunches of beans across each other, the roots being kept on one side of the pole. Do not expose to rain, which injures the color of the beans. Thrash with the flail, or with the machine with the concave raised.

Subsoiling and Deep Plowing.—(Young Farmer.) These terms are not synonymous. Deep plowing is turning over a deep furrow and thus bringing the subsoil to the surface. Subsoiling is breaking and stirring the subsoil without bringing it to the surface. The usual plan until within a few years was to plow an ordinary furrow with one team; and then to follow with another team and subsoil-plow. The latter had no mold-board. It simply ran in the furrow left by the first plow, and broke up the subsoil. We have seen plowing of this kind done in England with three horses on the first plow, and six horses on the second or subsoil-plow. As a rule it was too costly to be profitable. In this country we rarely put more than two or three horses on to either the first or second plow. And within a few years several contrivances have been patented and more or less used whereby the subsoiling and plowing are done with the same plow and at one operation.

Rheumatism in Horses.—"S. K. R." Adams Co., Wis. A common remedy for acute rheumatism in horses is to give 25 drops of tincture of aconite root every four hours until six doses have been given. The horse should be placed in a clean stable with plenty of bedding under him, and the legs and body should be covered with blankets kept wet with cold water (in summer.) Often rheumatism accompanies epizootic catarrh in which cases it disappears with the catarrh.

New England Poultry Club.—At the annual meeting of this association held at Worcester, Mass., on April 11th, it was decided to hold the next annual exhibition at Worcester on January 20-22, 1874. A. D. Warren was elected President, Philander Williams, First Vice-President, and G. H. Estabrook, Worcester, Mass., Secretary.

Mulching Fruit-Trees.—"J. A. McC." asks: "What is the best way to make fruit-trees live and grow the first year? Would you mulch or hoe?"—"We would do both. Plant in well-prepared soil. It can not be made too fine and mellow. Spread out the roots carefully, cover with fine, rich earth. Press the earth as firm as possible round the roots. Then cultivate and hoe to keep down weeds. Keep doing this until dry weather sets in, and then mulch with manure, straw, or anything that will check evaporation and stop the growth of weeds. The mulch should extend for at least three feet on all sides of the tree.

Raising Potatoes without Hoeing.—"J. A. McC." of Niagara Co., N. Y., favors us with his plan of planting and cultivating potatoes. He cuts peachblow potatoes two eyes in a piece. Marks out the land with small plow 3 or 4 inches wide, and furrows 3 feet apart. Then crosses the furrows with a common corn-marker with teeth 2 feet apart. Drops one piece in a hill. Covers with a large plow. Just before the potatoes are up harrows thoroughly crosswise of covering furrow. In a dry season, when the plants are one or two inches high, he throws a light furrow on the row. This acts as a mulch, and the potatoes grow rapidly for a few days. Then if the drag does not hurt the vines, harrow again. If it does, cultivate across the back furrows. This loosens the soil and works it down level. After a few days shovel-plow one way and cross with cultivator, which levels the earth down again. Finally, hill them up with shovel-plow, working thoroughly early and late.

Value of Roots.—"H. H. M." Camden, Me. On the whole, stockfeeders agree that the best roots for stock are mangels. They yield a far heavier crop than any other, and their feeding value is equally as good, if not better. The yellow globe is preferred generally, although the long red yields a heavy crop. Potatoes contain more nutriment weight for weight than mangels.

SUNDRY HUMBUGS.—In this season of backward crops the usually bountiful crop of humbugs seems to have been retarded. We look at this time for a new set, just as we look for spring styles in bonnets and hats. Our agricultural readers are no doubt too busy with spring work to send us the usual swarm of letters and circulars, but we do not flatter ourselves that the supply has given out. Here we have a lot of

LOTTERY SWINDLES OR GIFT ENTERPRISES

for various objects that are, in themselves, worthy enough. It is a great pity that every State will not do as Ohio has done, and put a stopper upon Lotteries, Distributions, Gift Concerts, and every form of this kind of gambling by abundant penalties in the way of fines and imprisonment for all concerned. If any of our readers wish to invest in the Gift Enterprise for the Library of Leavenworth, Kansas, the Omaha Orphan Asylum, the Milwaukee Light Artillery Gift Enterprise, or any other chance game of that sort, let them refer to our Humbug article for April, and see what people right on the spot say as to what proportion of the money paid in goes to the ostensible object of the scheme. The management of the Louisville Lottery, as there exposed by Louisville papers, is a bad enough showing, but it is probably better than can be made by the majority of such schemes.

MORE ABOUT PROCURING NAMES.

We have already shown how the various swindlers procure the names of parties to which they can send their (often infamous) circulars. A gentleman in Wisconsin sends us a new circular, with a letter expressing his indignation that such a thing should have been sent to his daughters—the good man not knowing that no home can be an Eden so sacred that these slimy serpents will not crawl into them. At the risk of giving the Charleston Medical Infirmary a first-rate advertisement, we will give the circular in full, remarking that the matter quoted is at the head of a ruled sheet, properly laid off for the convenient insertion of name, post-office, county, and state:

"OFFICE CHARLESTON MEDICAL INFIRMARY,
"CHARLESTON, ILL., May, 1873.

"Dear Sir or Madam:

"Thanking you for past kindness, we again solicit a small favor at your hands, for which we propose to recompense you. If you will fill out this blank to the number of 50 names and post-office address—first of all with the afflicted of every form, whether cripples, deformed, or chronic diseases, such as Consumption, Female Diseases, Catarrh, Deafness, Sore Eyes, etc., etc., in your vicinity and county; if not a sufficient number of these, add the names of your best farmers to make the number up to 50 (in all cases give afflicted first). If you do not always know the address of those afflicted, give the names and address of some of their friends, so we may reach them through this channel. On receipt of the list returned, we will send you (postage prepaid) by mail a fine colored engraving, 13x18 inches in size, of the late Washington Irving's home, 'Sunnyside, on the Hudson,' a beautiful picture, handsome enough to adorn the walls of cottage or palace. These names are intended as a channel through which to distribute our *Health Journal*, free. In doing this you are not only doing us a service, but a deed of philanthropy, as he that directs the sufferer to relief is a philanthropist.

"Trusting that we shall receive a speedy response.

"We are, very truly yours,

"DR. S. VAN METER & CO.

"P. S.—On receipt of 10 cents our 'Lecture on Marriage and Guide for the Young' will be sent, postage prepaid; a magazine of 48 pages, illustrated.

"Continue list of names on opposite page to same order as on this, and be sure and sign your own Name, Post-office, County, and State separate and apart from the rest, so we may know where to send the Engraving."

In every village or country place there is likely to be some one thoughtless enough to, for the sake of the proffered reward, fill up such a list with the names of the neighbors. If one of these "infirmaries" can get the name of a person afflicted in any manner, whether a hopeless cripple or one with an in-growing toe-nail, they will "go for him." But Van Meter and Co. did not catch our friend, N. B., of Beloit.

MEDICAL HUMBUGS

are unusually dull this month. One subscriber writes that he tried the "Ear-Vibrator" advertised in New York, and that it proved utterly useless. We suppose our friend to be a farmer, as he dates from a farming community. If one of "J. F.'s" men should come in and report that the reaper was out of order and would not work, would he look over the advertisements and order some hardware? This would be about as sensible as to order an "Ear-Vibrator" without knowing what is the matter with the ear. Would he not first examine the reaper and find out what was the matter, and then arrange for his repairs accordingly? The ear is one of the most delicate organs of our bodies, and of more value than many reapers; yet it is treated as if it were so much old iron, rather than, as it is, one of the most exquisitely-fashioned channels with which we communicate with the outer world. Why will people be sensible, and even economical, with regard to everything except their

own precious bodies, the very "Temple" . . . Have not we given our opinion of advertising doctors often enough to be spared inquiries about this or that one? Let those who have written these inquiries look in the "Humbug" column anytime these many years for their answer . . . The same will apply to all "Universities," "Medical and Electrical Institutes," "Wonderful Medical Discoveries," "Indian Blood Syrops," and the like. . . . Here is a good soul who sends us a pamphlet called the "Good Samaritan," with several passages marked, and asks what we think of them. His marking the passages shows that he thought they were inexpressibly vile, and he had little need to appeal to us. . . . Wonderful indeed must be the "Parisian Flesh-Producer," upon which patients have grown fleshy without taking a particle of food. It is singular that this "Flesh Producer," which was discovered at a conference of the "leading physicians of France," and "has been ordered by the Government to be used in hospitals," should first be made known to us through a small circular.

BURNING FLUIDS.

It is again necessary to caution all as they value their lives to have nothing to do with those oils of which benzine, gasoline, or similar liquids form a part. It is pretended that by the addition of various substances the explosive quality is removed. This is false, and no matter how much salt, potatoes, and other stuff be directed by the recipes, the liquid remains dangerous. . . . Particularly unsafe are those affairs in which the liquid is converted into a vapor in the lamp, and then burned after the manner of gas. The Vesta Gas-burner is of this kind, and seems to be industriously pushed. Our advice is to let all such things alone and, if need be, burn tallow dips rather than run the risk of them. . . . It is

SO EASY TO GET RICH.

that we wonder that any one remains poor. If we believe the circulars that we have before us, one is sure of a handsome income. L. C. Kennedy & Co. show plainly how a post-master can get \$2,000 a year without investing anything, by acting as agent for the "Seven Seals, or Golden Wonder." Young ladies can make \$50 a week by selling recipes to make "Crystal Honey;" or a yearly income \$1,061.50—there is nothing like being exact—by selling certain subscription-books, and so on. . . . The recipes that are sold are usually either old and well-known ones, or are thoroughly worthless. Here is one that will serve as a sample of those sold *verbatim et literatim*:

"A receipt to prevent mice, insects, bugs, or worms touching either fruit trees, current bushes, tobacco plants, or garden stuffs. Also for keeping either flies, lice or fleas out of houses and from stock.—One quart of turpentine; one peck of lime; one peck of ashes; one peck of walnut leaves; six onions; one quart of tar. Directions.—Mix the above well together in one barrel of water, using the tar only to put around the trees to keep the worms from crawling up into the branches in the spring, and omitting the tar, lime, and ashes. When used for the house and stock, use the above as a wash, or to sprinkle over the above-named. And we warrant the same to work effectually at all times and in all cases."

If any one can find out what to do from these directions, we hope he will do it. . . . We have letters asking about a Shirt-Pattern Company in New York. We know nothing about this particular case, but it is always safe to avoid dealing with any person who does not give his place of business, but *only* the number of a box at the post-office.

Galvanized Iron Pipe.—We learn that the American Submerged Pump Co. have abandoned the use of galvanized iron pipe, and substituted those covered with enamel, which they claim perfectly protects the contact of the water and iron.

Book Wanted.—"R. H.," Reading, Pa. There is no one book that we know of from which you can get all the information necessary to carry on a farm. "Warning's Draining for Profit," etc., is a useful book on that subject, and "Allen's New American Farm Book" is probably as good a one as there is on general farming.

Agricultural College Funds.—In one State after another we find the land grant to establish Agricultural Colleges a source of trouble. Now New York has its turn, and the Legislature is asked to investigate the disposition made of these lands by Mr. Cornell. It is a new thing to find the name of Mr. Cornell associated with dishonesty, and he repudiates the charges *in toto*, and asks for an investigation. It would be more pertinent if Congress should inquire how this grant came into the hands of Mr. Cornell at all; for whatever else Cornell University may be, it is not an Agricultural College. What a model, with a few exceptions, this whole Agricultural College business has been from the beginning; and we have abundant cause of congratulation that the additional grant lobbied for last year so thoroughly failed.

Trial Trip.—We invite all parties not acquainted with our valuable paper to try it for six months, from July to December. Subscribers will be received for that time at seventy-five cents each. Almost daily we hear the remark that some item in the *American Agriculturist* is worth far more than a year's subscription (\$1.50). Please understand, we will send it for six months beginning July '73, for 75c. Of course this does not include the beautiful chromo "Mischief Brewing," which is offered to all *yearly* subscribers free when taken at 245 Broadway, twenty-five cents extra when sent prepaid. Try it six months or a year.

Jersey Herd Register.—The Second Vol. of the Herd Register of the American Jersey Cattle Club is out, and is in form and general style much like its elegant predecessor. This volume contains Bulls, 540 to 917, and Cows 1,423 to 2,447. Besides these there is a list of owners, changes of ownership, and list of members. There are twelve fine photographic portraits of celebrated animals, and the whole is in keeping with the character of the choice animals to which the work is devoted. To be had of the Secretary and Treasurer of the Club, Col. Geo. E. Waring, Jr., Newport, R. I. Price \$5.

Trusses and Rapture.—As trusses are mere mechanical appliances for a mechanical derangement of the body, we advertise them, as they do not come under the rule that excludes medical nostrums. The number of inventions for trusses almost equals those of washing machines and cooking stoves. The tendency of inventors of trusses is properly towards simplicity. Those who recollect the formidable combinations of springs, buckles, and pads formerly offered as trusses, will be surprised at the simplicity of the new Elastic Truss. This appliance is so light, and the pressure is so equal and gentle, that it may be worn night and day without inconvenience, while it is sufficiently firm to hold the rupture during the most violent exercise. Where practicable, it is advisable to have a truss fitted by a skilled person, and those who live in and near the city can find such at the elegant rooms of the Elastic Truss Co., 683 Broadway, near Am'ty street. The truss is cheap, and being so light that it can be sent by mail, it is brought within the reach of all who need one.

A Good Thing in a Good Place.—Mr. R. C. Browning, President of the Metropolitan Washing Machine Co., who has been a very large advertiser, informs us that for some time past he has advertised only in this paper. He finds it to be his best paying medium. Other parties who have as good articles as the Universal Wringer and Doty Washer, which are made by the above-named company, will find the *American Agriculturist* unequalled for bringing good, paying customers.

Flax Seed for Mares.—"Lankford." A small quantity of flax-seed meal occasionally will do no injury, but rather good to a mare in foal. One or two pounds in the feed thrice a week would have a laxative and cooling effect.

Manuring Salt Meadows.—"F. G.," Mapes Landing, N. J. It is doubtful if any manurial application would improve the product of a salt meadow, unless it could be drained and freed from the overflow. In that case lime would be the best application in comparatively large quantities, say 75 to 100 bushels per acre. Marl would be the next best application.

A Screw Stump-Puller.—"D. T. D.," Seattle, Washington Territory. A stump-puller that rests upon framed timbers as the one referred to, may be used without trouble on uneven land by blocking up beneath the sills. For this purpose a few spare wooden blocks should accompany the machine.

Hay or Corn.—"L. M. C.," Norwalk, Ohio. Corn can not be substituted for hay altogether, and although corn may be only \$15 per ton and hay \$20, yet corn can not be used alone. It is too stimulating and too nutritious, and not sufficiently bulky to be fed alone. But if a ton of corn at \$15 is fed with one ton of cut corn fodder at \$5 a ton it will be equal to two tons of hay at \$20 a ton, and in such a substitution there would be a great gain, equal to one half the cost of the hay.

Grass for Wood Land.—"R. H.," Reading, Pa. Orchard grass is the best to sow in shaded pastures or in open woodland cleared for pasture.

Crushing Bones for Poultry.—"Mrs. S. D. C." There is no hand machine for crushing bones for poultry. Bones are too hard for any hand machine. Our plan is to have a large stone in the poultry yard, and break the softer bones with a common hammer, allowing the pieces to fly where they happen to go. The fowls

generally attend very closely on the operation, and pick up the fragments as fast as they fall. The larger pieces are broken again until they are fine enough. The very hard bones are burned and given to the fowls with the ashes, from which they select the fragments.

Keeping Butter in Hot Weather.—"Jas. F. C.," Orange Co., N. C. There is little doubt that the soiling system will prove successful in your section where with rich soil and mild climate green crops may be secured throughout most of the year, if only a proper selection is made. Then with proper care in keeping the milk and packing the butter, there would be no reason why success could not be assured. With an ice-house and an underground dairy built somewhat on the plan of that figured in the *Agriculturist* of November, 1871, pages 417, 418, the milk and butter might be kept cool. In packing the butter care should be taken to procure new white oak firkins or pails holding 50 to 100 pounds, which should be soaked in brine before being used. The butter should be packed closely in layers of six inches or thereabout with a handful of the best dairy salt sprinkled on each layer before the next is put down. When full the butter is to be covered with a piece of muslin neatly fitted, this is covered with a layer of salt, and the firkin headed up tightly and kept in a cool place.

Turnips Every Year.—"R. E. H.," White Creek, N. Y. It is not advisable to sow turnips on the same ground every year in succession.

Red Pepper for Stretches.—"L. N. C.," St. Croix Co., Wis., writes that he gave a teaspoonful of red pepper in water to one of his sheep which was suffering from stretches, and it soon recovered and commenced eating.—As stretches is simply the result of indigestion, anything that promotes digestion is both a preventive and a cure. Salt and sulphur regularly given to sheep is considered a remedy for this complaint.

Using Bones.—"R. E. H.," Washington Co., N. Y. The easiest method of disposing of a wagon-load of bones is to burn them in a heap with waste wood, and then pound them into dust on the barn floor with a wooden pounder. They may then be sown in the drill with turnips, for which they are very useful, or may be spread on grass land or pastures.

Cruelty to Animals.—"W. G. G.," Spencer Co., Ind., writes: "My cow was sick a few days after calving. I split her tail, put in salt and black pepper, and tied it up; poured turpentine in the hollow back of her horns, and bored a hole with a gimlet in each horn about two inches above the hair. *Did I do right?*"—Now this poor cow had recently calved, her appetite became poor, and she was continually lifting up her hind feet and setting them down in another place, showing by this action, as plainly as a dumb animal could, that she was in pain and suffered from weakness consequent on her condition. It was simply a case of frequently occurring nervous debility, and should have been met with warm blankets over the loins kept wet with warm water if the cow's extremities were cold, and warm drinks of bran or oatmeal gruel, with soft bedding, and generally kind treatment and careful nursing, instead of the above cruelties, which make one shudder to think of.

Mangels.—"S. A. H.," Cherryvale, Kan. Mangels may be sown early in June. They are sown in drills the same as rutabagas, and need exactly the same treatment. In another place will be found a description of the method followed in Canada which is a good one.

Pump for Well 25 Feet Deep.—"H. M. H.," Orange Co., N. Y. For a well 25 feet deep any common suction pump will answer. The best wooden pump is one of cucumber wood, the best metal pump is the American Submerged Pump.

How to Raise Mangels.—F. Malcolm, Innerkip, Ontario, writes as follows: I had about half an acre of mangels last year from which I took about 600 bushels, part was Long Red and part Yellow Globe. The Long Red would have yielded the largest bulk, but I think most highly of the Yellow Globe, it being more solid and not liable to break in throwing into the cellar. My plan of sowing is first to make drills about two feet apart, open the top with the end of a stick and sow immediately. (6 pounds per acre is the usual quantity of seed.—Ed.) Then walk on the seed heel to toe, which will make quite a hollow in the center of the drill. Then with a garden-rake level the drill which will cover the seed about half an inch. Carrots I treat the same way, and have been very successful in getting a good catch. A little extra trouble in putting in the seed will perhaps give two or three hundred bushels more per acre.

Why they Burn Corn.—"A Farmer's Boy," Nebraska, tells us why they burn corn out there. He lives twenty miles from timber, and by going that distance can buy green cotton-wood for \$9 a cord, paying for it with corn at fifteen cents a bushel. At this rate, counting the value of two days' hauling, one cord of wood costs 100 bushels of corn, which will burn three times as long and make a better fire than the wood. It is therefore the cheapest fuel that can be procured, to say nothing of its convenience.

Cure for Hoven.—A. Chavannes, Knoxville, East Tenn., writes that in cases of hoven in cattle he has administered, with entire success, a table-spoonful of sulphuric ether in one pint of water. If the case is a bad one, a second dose is given in fifteen minutes after the first. The cow is made to walk up and down gently until relieved.

Will it Pay to Draw Manure Seven Miles?—A correspondent has recently bought a run-down farm, seven miles from Montreal. He has been hauling manure all winter with two teams, one trip per day; men receiving \$20 per month and board themselves. He "can get any amount of manure merely for the hauling. Will it pay? Also, is the manure from cow-stables as valuable as horse manure?" We think it will pay well, especially if you could find something for the teams to draw into the city. If the cows are fed on bran, brewers' grain, and clover hay, the manure is better than ordinary horse manure.

What to Do with the Manure.—The same gentleman asks whether he had better use his manure for hay or for potatoes, both of which, he says, bring a good price in the Montreal market.—We think it would be better for the land to apply it to grass. First make the land rich, and then a few years hence grow potatoes.

Flow of Water Through Pipes.—"P. T. D.," Deans Corners, N. Y. It depends altogether on the amount of pressure or the height of the spring above the discharge, what amount of water would pass through a $\frac{3}{4}$ inch pipe 1,500 feet long. If the head was 40 feet there would be a pressure of over 15 lbs. per square inch, which would be sufficient to overcome the friction and yield a good flow. But if the head was only 2 feet or less the flow would be very much diminished by friction or the adhesion of the water to the sides of the pipe, unless the diameter were increased. In the writer's experience a half-inch pipe of over 1,200 feet with a head of three feet above the outlet only yielded a few drops of water in a minute; and when half the pipe was changed for another an inch in diameter, it gave about one pint per minute; with the other half changed to $1\frac{1}{4}$ inch there was a good flow.

Potash on Sandy Soils.—"D. F. W.," Such very soluble fertilizers as carbonate of potash, (common potash) and other chemical manures, have not been found of much use on light, sandy soils. They are very soon washed out of reach of the roots of plants by rains and lost. Stable manure or clover plowed under has been found of greater use in improving such soils than anything else.

Steaming Feed.—"H. A. S.," Hartford Co., Ct. It makes no difference in the process of steaming feed whether the steamer is higher or lower than the steam-chest; but the steam should always enter at the bottom of the chest. It is not easy to drive heat downward. There would be no greater consumption of fuel worth speaking of with a pipe 100 feet long properly protected than with a pipe 5 feet long. The amount of fuel needed for a Priodle Steamer to steam for 20 head for 6 months, would be about two cords of dry, hard wood, or two tons of coal, or somewhat less.

Spotted Essex Pigs.—A correspondent asks: "Are the pure, improved Essex at the present day ever parti-colored? My case is this: An Essex sow bought in Mass., of a most reputable breeder, has just had her third litter from a boar purchased of the same breeder; and there are three of the pigs spotted, buff and black and white and black. Her two previous litters from another boar were all jet black."—We have heard of such cases before. It does not necessarily follow that the pigs are not pure-bred. The truth is, however, that there is a kind of mania among pig breeders both in this country and in England for "improving" their pigs by crossing, and the probabilities are that some of the ancestors of these pigs came from such a breeder. The breeder from whom our correspondent got the pigs may have been a most careful and reliable man, but if he got some of this cross-bred stock the alloy may show itself

many years afterwards. The Essex was originally a parti-colored pig, and this may be another instance of reversion. Still we should be inclined to reject the stock. At any rate, we would not breed from any that are not entirely black.

Three Questions.—Win. Marshall, Adamstown, Md., asks, 1st. "Does the bottom of a carriage-wheel move when in motion; if so which way?" 2d. "Will two railroad trains of equal weight moving with equal velocity collide with greater force than one of equal weight and velocity running against a solid rock?" 3d. "Does the pendulum of a clock stop between its vibrations?"—Replies.—1st. The motion of any given part of the circumference of a wheel is in the form of an arc of a circle whose chord is equal to the circumference of the wheel, and whose height is equal to the wheel's diameter. The direction of the motion of any point in the circumference would be that of a succession of these arcs. 2d. The two trains would collide with double the force with which the one would strike the rock. 3d. A pendulum stops for an instant of time between each vibration. There can be no abrupt change from a forward to a backward motion without such a stoppage.

Would be a Civil Engineer.—"J. F. S.," Hanover, N. H. There is no other method of becoming one of a corps of engineers on a railroad survey than first becoming a competent engineer, and then procuring a situation from the engineer-in-chief who has charge of the survey, or through some party having influence with him. The latter is the most difficult part of the business.

What is a Ton of Manure.—"J. E. C.," Douglas, Mass. When "a ton of manure" is spoken of, 2,000 pounds is meant. "A load of manure" is supposed to mean an ordinary two horse farm wagon loaded in an ordinary manner. Generally such a load of barn-yard manure, not water-soaked, will weigh about one ton. If the manure is piled up until no more can be put on without squaring up the sides, two tons may be put on to a wagon, but few farmers haul more than a ton on to the soft soil of their fields.

Hydraulic Cement Pipe.—"J. W. R.," Buckhannon, W. Va. In the *Agriculturist* of November, 1872, will be found directions for laying cement pipe, fully illustrated with engravings.

Advice to an Immigrant.—G. Walker, Ballinasloe, Ireland. A young man intending to purchase a farm in America would do well to stay a year with a good farmer here; but as "farm stewards" are unknown in this country it would not be possible for one to act as such. Neither would it be likely that a young foreigner could secure a salary for the first year's work except as a laborer, because, instead of being of any value to an employer, he would have much to learn of our climate, soil, productions and method of agriculture, all widely different from those peculiar to Ireland.

"Orange Co. Pails."—"J. H. B.," Burlington Co., N. J. The Orange Co. butter package is a pail or tub holding 50 pounds, with a close-fitting lid, and painted, generally, blue. A very excellent butter pail is made of oak the same size and shape as the Orange Co. pail, with metal fastenings, and known as the "Westcott return pail."

Is Pea-Straw Injurious.—"A. J. S.," Eel River, Cal. There is nothing in pea-straw itself, saved in good condition, to account for a fatal attack of red water in cattle fed upon it, nor indeed, for any ill-effects on the urinary organs. But sometimes a species of rust, or a fungoid growth similar to rust, appears upon pea-straw, especially when a heavy crop has been laid and the weather is hot. Plants affected by smut, mildew, and similar diseases, are unwholesome to cattle, and it was probably something of that kind which injured them in this instance. In such cases a pound of Epsom salts should be given immediately, and copious drafts of linseed tea. The disease called red water originates almost every time from unwholesome fodder.

Burning Bones.—"S. F.," Chester Co., Pa. It will be cheaper to burn bones than to give half for gridding them. The fat contained is of no use as manure for any purpose, but the gelatine is valuable as it furnishes nitrogen. This, of course, is lost in the burning, and it amounts to about 40 per cent in dry bones.

Herd Law in Kansas.—A correspondent, who is one of the Commissioners of Crawford Co., Kansas, states that their Legislature a year ago gave County Commissioners the power to prescribe what ani-

male should not be permitted to run at large, and providing for the recovery of damages by parties injured against the owners of trespassing stock. The Commissioners of Crawford Co. have made an order restraining all stock from running at large. The fact, therefore, that special enactments for separate counties were decided to be unconstitutional should not lead to the mistaken idea that there is no "herd law" in Kansas as stated by a former correspondent.

Late Corn.—"W. M. M.," Northampton Co., Pa. We have secured perfectly ripened corn which was planted so late as the 24th of June, but it was an early sort, viz., the early Canada, which is excellent for replanting or for planting on a newly-mown clover sod.

The Best Fertilizer for Corn.—"W. M. M.," Easton, Pa. Our observations last year proved very satisfactorily that the best fertilizer for corn is the dried flesh-and-blood manure. It acts immediately, produces a great growth, and pushes the crop rapidly forward, thus causing an early ripening.

Manure for Corn.—"J. F. W.," Center Co., Pa. Bone-dust is not sufficiently active as a manure for corn. The best manure we have used or know of for corn is blood or flesh-manure. It has a large proportion of ammonia, is very soluble, and acts immediately. If not possible to apply it with the seed a handful may be hoed in around the young plant with the best results.

Horse-Powers.—"J. G.," Bristol, Ct. There are but two kinds of horse-powers, the lever power and the tread-power. The latter is the most convenient where two horse-power is sufficient, as it occupies but very little room and may be set up on the barn floor. There is no danger to be apprehended in using a tread-power if common precautions are taken, and oxen may run them as well as horses.

Managing Manure.—"F. H. W.," Buncombe, N. C. It is a disputed question whether it is most economical to draw manure fresh from the stables and spread it on the surface where it shall remain until plowed under or it has rotted on the surface, or to work it in the barn-yard until it has rotted and become fine. The latter practice is the one generally adopted, and although it causes more work, yet there is abundance of time during the season when field work can not be done, when this may be without extra cost. If the manure is piled up and fermented and then turned over and heated once more with proper care, it becomes so fine that it may be worked into the soil with the harrow along with the seed. We do not know how manure can be more profitably used.

Corn on Muck Land.—"C. H. S.," Miami Co., Ind. Corn will not thrive on muck land without a good dressing of wood ashes or lime. The reason of the crop turning yellow and perishing on such land is simply that vegetable matter alone will not support a crop; mineral matter is needed. If not too costly a process the addition of two or three hundred loads of clay to the acre would vastly improve muck land.

Fodder Corn.—"J. M.," Jefferson Co., Ohio. There is no better crop to raise for fodder than corn. It may be planted in rows 30 inches to 3 feet apart, at the rate of 3 or 4 bushels per acre, which will give 12 grains to the foot or thereabouts. It should be cultivated as carefully as ordinary corn, and on rich soil will yield an immense crop. Sown broadcast it will not yield so much as when in rows.

Loss of Wool.—"J. M.," Butler Co., Ohio. Loss of wool is not necessarily a sign of disease. Some sheep have a habit of shedding their wool in the spring. Such should be sheared as soon as the fleece becomes loose, and if the weather is excessively cold protect them.

Mole-Plow for Irrigation.—"S. B. W.," Greeley, Col. In a loose friable soil it is not likely that the channels made by a mole-plow would last for 24 hours. If water were turned into these channels they would collapse at once. It would not pay to go to the cost of making the experiment. In a stiff clay the channels might be more permanent, but it is inevitable that loose earth would fall in and close them very frequently. Irrigation must necessarily be from the surface.

Egg-Eating Fowls.—"G. H. W.," Hubbardtown, Mass. When fowls are confined they will eat their eggs, and no persanation but that of the axe will prevent them. They must be freed from confinement and given their natural employment of scratching, or they will get into this mischief.

Swinging Door for Pig-Pen.—"F. H. W.," Bannock Co., N. C. The swinging door figured in the March *Agriculturist*, is designed for each pen only and one is sufficient. It may not be necessary in North Carolina to provide such careful shelter for pigs, but it is in the North, where drifting snow is often permitted to completely fill the pen, and the pig compelled to make its bed in it.

Lime.—"H. M. L.," Somerset Co., Pa. It is a fact that the richest portions of Pennsylvania in which farming land as such is salable any day for \$100 to \$300 per acre has been made rich, and is kept so, by the regular use of lime. Not by lime alone by any means, but with the addition of clover, and large quantities of manure made from the direct resources of the farm. The produce sold consists of grain, meal, butter, and cheese. It is there claimed that this can not be done without the regular use of lime applied in each rotation with the grain crop with which the land is laid down to grass and clover or clover alone; and from the writer's experience this claim is abundantly supported by the results. It is the large quantity of vegetable matter added to the soil in conjunction with the lime which maintains and even adds to its original fertility. If this is the case in Eastern Pennsylvania, why should it not be in the Western part or elsewhere?

Hungarian Grass or Millet.—"A New Subscriber," Saratoga Co., N. Y. A crop of Hungarian grass or millet might be taken from a sod plowed after mowing. No crop pays better for a proper preparation of the ground both in rendering it mellow and due and in fertilizing. If hay is desired we would sow thickly, say 3 pecks or a bushel of seed per acre, and cut immediately after the blossom has turned. If sown thinly the hay is coarse. If sown for soiling, the ground must be very rich, or it will make no second growth.

Machine-Cut Clover.—"E. F.," Providence, R. I. There is no difficulty in raking clover cut by a machine. With us a steel-tooth horse rake never "ruined it." It needs to be raked as soon as it is thoroughly wilted, and cured in the windrow or cock. The slight heating and fermentation it there undergoes rapidly drive off the water, and give a sweetness of flavor to the hay, which makes it greatly more palatable and nutritious. But unless clover is cut at a proper time, which is in early blossom, it is really ruined, beyond redemption by any process of curing.

Farming in Arkansas.—John C. Palmer, Monroe Co., Ark., writes that parts of Arkansas may be called the farmer's paradise, where with less labor larger returns can be made than anywhere else he knows of. He makes 60 bushels of corn to the acre. The past season he has made 35 bales of cotton of 475 lbs. each on 31 acres. 3 acres made 2,100 pounds of lint. Clover hay grown there is not excelled in Kentucky, nor is bluegrass, red-top, nor timothy. His experience with clover is the most satisfactory. There he gets three crops in the year. The first cutting yields a ton and a half of hay, and the other two one ton each to the acre. All the fruits but grapes succeed well. Essex and Berkshire pigs are found the best to improve the native hogs, which are very poor. He raises his own horses, mules, cows, sheep, and all their feed, and if more Northern farmers with capital could get thither the country would rapidly develop.—(Our correspondent's success with clover is well worthy of emulation by our Southern readers, with whom the growth of this crop will be found a key to open up a vastly improved condition of agriculture.—Ed.)

Salt for Stock.—"R. S. W.," Trenton, N. J. Salt is absolutely necessary for all sorts of stock. It assists digestion and helps to prevent the presence of worms, but as a remedy against them when they have taken possession it is of no avail. But if not fed regularly it is of very little benefit. It is best to have a lump of rock salt where the animals can always gain access to it, otherwise a special time should be set for salting.

Interfering Horses.—"O. S.," Granby, Ct., writes about interfering horses. He says: "I have seen but few out of several hundred interfering horses that struck the opposite ankle with either the crust of the hoof, the shoe, or the heel-cork; and those were all cured by rest, good keeping, and hand-rubbing of the legs, thus showing that weakness and a loose shambling gait were the cause. When the crust of the hoof turns under on the inside and grows out on the outside, the horse will interfere. When such a shaped foot is seen, some chalk should be rubbed on the hoof, and when the horse strikes and the foot is examined, it will be found that the chalk has been rubbed off near the toe, and if the clinches of the nails are loose, they will be found to have torn the

skin of the opposite ankle. In such a case the hoof should be pared away on the outside as much as is safe, and the shoe set out on the inside so that the bearing of the foot will be equal on each side from the center as it rests upon the ground. The horse will not then interfere. A farrier who had a reputation for shoeing interfering horses so as to cure them, tried this plan on a horse, and found that the chalk mark was rubbed off on the outside of the toe, and that two projecting clinches there had cut the opposite ankle. He pared the outside of the hoof and set on a shoe made very thin on the outside and very thick on the inside, and set well out on the inside with the heel wide. The interfering then ceased. This is not the only trouble that can be remedied by skillful shoeing."

A Double Carolina Jessamine.—The ordinary wild Carolina Jessamine (*Gelsemium*) was figured last month. Since then we have received from Mr. P. J. Berckmans, Augusta, Ga., the flowers of a double variety. This novelty which, if we mistake not, originated in Louisiana will be prized in Southern gardens and Northern conservatories.

Luminous Minerals.—Querist asks: "Is there a mineral substance which emits sufficient light in the dark to enable a person to read letters or figures?"—There is no mineral that gives off light of itself in this way, but fluor spar and some other minerals after being exposed to sun light are "phosphorescent" when taken into a dark room, and continue for a while to give off some of the light they have absorbed.

Hollow Horn.—"A Learner," Chatauqua Co., N. Y., says, "How am I to believe that there is no such disease as 'hollow horn' or 'horn ail,' when I find the horns seriously affected, sometimes very hot and feverish and sometimes deathly cold? Are not these symptoms proof of disease there? And yet you say there is none."—Learner has well designated himself; for it is necessary for him to learn that when he himself has a severe headache and a burning heat in his temples, and throbbing veins, that it is not his head but his stomach that is out of order. In such a case, he would linger a while before he poured pepper and turpentine into his ears. Both men and oxen are flesh and blood.

Insects from Georgia.—"J. T. S.," Snow Hill. The cases found on the rose and quince are the nests of the Basket-worm (*Thyridopterix*). The perfect insect is a moth. The larva lives in these cases and moves about with them. The female never emerges from her case but undergoes her transformations, lays her eggs and dies there; the coffin of the mother serving as a cradle for her children. When sufficiently numerous, they do much mischief, and should be destroyed.

Green Manure for Garden.—"A. B.," Galt, Ontario, finding stable manure expensive, proposes to sow peas or rape and turn under. This would certainly enrich the soil and would answer among trees, but practically it would be difficult among currant-bushes, where he proposes to use it. The crop would be apt to smother the bushes. Better make a compost of muck and lime and spade it in around them.

Mange.—At this season of the year dogs, horses, and cattle, are subject to a parasite in the skin which causes severe itching and loss of hair. It is the well known complaint mange, which is similar to the formerly well-known itch. A cure is to rub the affected parts with an ointment made of 1 pint of fish-oil, 6 ounces of flowers of sulphur, and 6 ounces of spirits of turpentine. As it is contagious, or communicated by touch or contact in any way, the stable fittings, walls, and door frames, should be washed with lime-wash in which carbolic acid has been dissolved, at the rate of 4 ounces to the pailful.

Diseases of Poultry.—As a reply to many inquiries respecting diseases of poultry, we say generally that the remedy lies altogether in prevention; that preventive measures against cold, damp, filth, overcrowding, want of ventilation, irregularity of feeding, and watering, in every case ward off almost every complaint that poultry are subject to. Other curative measures are generally inapplicable, and if those we mention are resorted to disease will be prevented or its progress stopped when it has occurred.

Striped Bugs.—The following comes from "S. F.," a correspondent of Delaware County, O. "Take four pieces of board, each one foot long and seven inches wide, nail them together, and this will make a box without top or bottom. Before your plants are up put this on the hill, press it down so that bugs will not creep under, and the work is done. When you want to hoe them

take off the box; this done replace as before. I have proved it for several years, and never had one enter the premises. Several that I know have tried it never failed of a sure defence. When the plants are so large as to be out of the way of the bugs take off the box and put it under shelter, and it will last forty years or more. Try it, it don't cost much."

Sheep for the Plains.—"C. H. S.," Republic Co., Kansas. Pure Merino sheep are not exactly the proper sort wherewith to experiment in sheep-raising on the Western plains. They are too costly, and pure Merino wool is not the most profitable. The wool manufacturers need mostly the three-quarter fleece, which is produced by sheep of two crosses of pure rams on native ewes. For a person who is commencing sheep culture, it would be best to procure not more than 100 well-selected, healthy native ewes of two or three years old, and three two-year-old pure Merino rams. The ram lambs produced should be raised as wethers, and only the pure rams used; after the second year, the produce would be three-quarter blood, and would yield fine fleeces of more than double the weight and twice the value per pound of the original natives. As the flock increases, so will the experience necessary to succeed, and the number may be increased indefinitely.

Manure for Beans.—"M. O. R.," Sackett's Harbor, N. Y. As a general thing, beans do not require much manure. Stimulating manures produce a rank growth of vine, but few pods. A dressing of a few bushels of wood ashes, one bushel of ground plaster, and a bushel of salt would meet all the requirements of a crop of beans, and with us have always produced a fair crop on well worn but cleanly cultivated soil.

A Seasonable Suggestion.—"L. L. S.," Tipton, Iowa, says that the reason why the lambs die as Mrs. W. S. has complained, is that their teeth have not appeared through the gums, and that the gums being very tender and sore in consequence the lambs refuse to suck. As a remedy he cuts the gums with a sharp pen-knife or lancet, so as to allow the teeth to come through.

Spaying Sows.—"H. M. C.," It would be unsafe to attempt to spay a sow from any written directions. After a person has seen the operation performed a few times he can operate on a slaughtered animal several times until he becomes proficient. Any mistake made on a living animal would be fatal, as the ovaries to be extracted are in close proximity to vital parts, which are to be carefully avoided.

A Mile and a Kilometer.—"E. L. N.," St. Louis, Mo. An English mile is 1,760 yards or 5,280 feet; a kilometer is 1,000 meters; a meter is a French measure equal to $39\frac{37}{100}$ inches or $32\frac{8}{100}$ feet. A kilometer is therefore 3,280 feet or 1,093 yards nearly, or exactly 4 furlongs 35 rods 12 feet and 3 inches.

Moss on Apple-Trees.—"S. K. B.," East Milton, Mass. The best application to remove moss from trees in an orchard is a solution of potash, or concentrated potash lye (which can be procured at any store) or strong soft-soap. If neither of these can be procured easily, lime-water, the clear water which remains after the lime of the whitewash has settled, is the next best. Young trees should never be whitewashed. The application must be renewed each spring.

Windmills.—The numerous inquirers about windmills for grinding grain and other mechanical purposes are referred to our advertising columns, where they may gather the information they desire.

Small Packages for Butter.—"M. R. H.," Ironia, N. J. There is a very useful package for butter in which small quantities of one to five pounds can be put up. It is patented; we can not give you the maker's address. When he is desirous of selling them he will probably make the fact known in the usual way.

Root-Culture.—It is constantly said that roots can not be grown in this country. A striking argument to the contrary comes to us in the shape of a solid and handsome Russia turnip from J. B. Page & Son, of this city, which was grown at Vineland, N. J., which measures 24 inches in circumference. Now if such roots can be grown in one place, they can be in another where the soil and season are similar. The soil of that part of New Jersey is well known to be a light sandy loam; and if roots can be produced there, there is nothing to hinder their growth elsewhere. Root-culture is one of the most important means of improving our agriculture, and the common cry of "they will not grow here" is clearly shown, by the success of those who do grow roots, to be an imaginary bugbear and nothing more.

The Pure Brahma Fowl.—"R. K. P.," Detroit. A pure Brahma cock is not up to the standard unless he has a pea-comb. Some single combs will be found occasionally amongst pure-bred fowls; but they should be weeded out if uniformity is desired.

Wild Garlic.—"D. H.," Bedford, Pa. Wild garlic can only be killed by clean cultivation. Meadows infested with it should be plowed up and put under hoed crops, and grain-fields should be summer-fallowed before they are sown down to grass again. With care, this pest may be extirpated.

Plowing Under Clover.—"F. F.," Clarion Co., Pa. Red clover should be turned under when in blossom, as then it is in the best condition for rapid decomposition. If ripe, the stalks are woody, and remain some time in the soil before they decay.

Veterinary Books.—"W. M.," Yorkville. Stonehenge on the "Horse in the Stable and the Field," English edition, price \$3.50, is one of the best of this class of books.

Garget.—"H. E. L.," East St. Johnsbury, Vt. A cow that has had the garget three years in succession may be expected to have it after every calving. She should be fattened and butchered.

Cheese-Factory in Iowa.—"A. W.," Saratoga Springs, N. Y. A cheese-factory costing \$5,000 would not pay to work unless there were more than 200 or even 400 cows. As a rule, small factories do not pay. There is no reason why a factory in Northern Iowa should not be as profitable as one in the State of New York, if all other things were equal.

Bad Taste in Well-Water.—"S. J.," Bowmanville, Ontario. Generally, the first effect of a wooden pump put into a well is to give an unpleasant taste and smell to the water. This may often be remedied immediately by suspending a bushel of fresh charcoal tied up in a clean cotton cloth in the well; but it will pass away in time of its own accord. It is the result of the decomposition of the soluble matter of the wood.

Why do the Apple-trees Suffer?—"W. G. G.," says that the ends of the twigs of his apple-trees died last summer from some unexplained reason. The wine-saps suffered the most. Why was it?—We can not tell without seeing some of the twigs. It may be the work of an insect which bores the center of the twig. If it happens again, send us a few of the twigs in a letter that the cause may be ascertained.

Do Mules Breed?—"W. G. G.," No. They are hybrids or crosses between two distinct races, and hybrids do not breed, although exceptions to the general rule have been reported.

Chicken Troubles.—"W. G. G.," We repeat what was said last month, that nearly all the troubles experienced by fowls result from cold, filth, poor feed, scarcity of water, and want of care generally. Lice affect only those fowls that are thus neglected; and when fowls turn white "around the gills," droop, and die, it is certain that there are some of the above-mentioned causes at work. Remove the cause, and the effect will immediately cease. A good tonic for fowls is a small piece of coppers in their drinking water, and pills of ginger or pepper, or both, made up with bread-crumbs and a little soap.

Relative to Kansas.—"K. S. N.," Wakefield, Mass., inquires, "How many acres of land and how many head of cattle would be necessary to raise hay enough to clear \$2,000 a year on good Kansas land? Also, how much capital would be necessary to purchase such land?"—That depends much on the man. We have seen land in Kansas that raised four tons of tame hay per acre, and similar land could be purchased in a wild state in that section, Eastern Kansas, for \$15 to \$20 per acre. The difference between the prices of prairie and tame hay in Kansas is not much, prairie selling at from \$4 to \$7 per ton. With these figures, one can make his own calculations.

Pulling Stumps with Pulleys.—"J. Y.," Springfield, Ont. In the *Agriculturist* of May, 1872, page 176, there will be found an engraving showing how to pull stumps by means of pulleys.

Botts.—"E. P. C.," Mills Co., Iowa. Whether botts kill horses, or whether the horses die of something else and the botts are unjustly blamed for it or not, may be a question for investigation, but it is certain that if the botts are excessively numerous in the stomach the

irritation is sufficient to cause death. But all risk of this may be prevented, together with much trouble to the horse from these pests, by covering the horse's neck, shoulders, and chest with a thin cotton covering, and carefully at noon or night scraping off all the botts' eggs which are deposited on the horse's legs or knees with a sharp knife, or by washing them off with warm water. Prevention is better and safer than the very best cure.

Sugar from Sorghum.—"E. P. Cook," White Cloud, Iowa. Sugar has been made from sorghum, but it is not crystalline. It is in a sticky or pasty condition, and although a process is said to have been discovered by which ordinary crystalline sugar is produced from sorghum, yet we do not hear anything of its operation. The inference is that it is not profitable.

Making Butter by Power.—"M. H.," Toledo, Ohio, sends us a slip cut from a paper which describes a method of working butter by power as follows—viz.: "In place of the inefficient hand working of the butter, jaws worked by power, squeezing out the butter-milk, just as the melted slag is squeezed out of the soft-ened iron puddling." We have no doubt that a process something like this might be used in large dairies and by intelligent dairymen, but we never heard of any such in practice, and the paragraph is merely a piece of clap-net. There is no similarity between the processes. Iron needs a great deal of squeezing and working to render it fibrous and tough, while butter is easily spoiled by over-working. The writer who wrote the paragraph probably knows very little about either process.

Disposing of Patents.—"G. W. N.," Hubbard, Ohio. The safest way for any party who has a patent to dispose of would be to do no business unless with known parties. There are sharpers always on the look-out for those who receive patents, and sometimes they get a deed of a patent without giving any consideration. It is better to see the parties you deal with.

Churning the New Milk.—"M. H.," Toledo, Ohio. The plan of churning the whole milk is very rarely followed. It is really more laborious, unless horse or steam power is used, than setting the milk for cream and churning the cream. The butter is of a whiter color, owing to its containing many small particles of caseine from which it can not be freed, and for this reason it does not keep well, and soon acquires a cheesy flavor and smell. We tried the plan many years ago, and do not approve of it—at least, for ourselves.

Green Manuring.—"S. K. R.," Adams Co., Wis. It is doubtful if land can be kept fertile by plowing in clover without applying other manure. Clover is not a universal panacea for all the troubles of the farmer, nor does it furnish a universal pabulum for all crops. In some cases clover refuses to grow, as on clover-sick lands, which are restored by a dressing of lime and a suspension of the crop for a few years. Yet there is but little danger of that occurring at present; the difficulty is the other way, and few farmers in America ever saw a clover-sick field. Plowing under clover is one of the methods of manuring only, and is not able to supplant other methods in common use, but should be used along with them.

Buckwheat Bran.—"J. S. McV.," Wal-lending, O. Buckwheat bran is excellent feed for sheep, and if sifted from the hulls make a good feed for horses given on cut hay in winter. It is excellent for young cattle and cows, but is too heating for hogs. Hogs when fed on it become scurvy and scabby. Its market value is generally half that of corn-meal, but it is hardly worth so much in comparison to use.

Steaming Fodder.—"L. L.," Detroit, Mich. In the *American Agriculturist* of January, 1873, will be found an article, with illustrations, on cooking food for stock. The number will be sent for fifteen cents.

Everlasting Fence-Post.—"L. A. N.," Hartford Co., Ct. The statement now widely published that a coating of linseed oil and pulverized charcoal applied to fence-posts will render them imperishable is calculated to mislead. As soon as the oil is absorbed by the wood, the powdered charcoal is left on the surface, where it has little or no effect at all. If the fence-post is green, it will rot very rapidly. If the fence-post is well-seasoned, and the surface of the part buried in the ground is charred slightly, it will last much longer than one not so treated. If the upper part of the post is peeled, and painted with crude petroleum or linseed oil it will be rendered more durable.

Encouragement.—"J. H. E.," has tried it. He is back again on the farm. And now, as a warning

and an encouragement for others, he writes that after selling off his farm stock and going into the provision trade with golden visions cheering his sleeping and waking hours he found, alas! that they were but visions, and the realities were anything but golden. Harder work, mentally if not physically, longer hours, disturbed slumbers, failing debtors, small profits, active competition, and a lightened purse at the end, were the results of his experience; and now he rejoices over the one dollar that stays in his pocket more than over the ninety and nine fleeting, deluding dollars that never reached that spot. He is a contented farmer now.

Chronic Founder.—"F. S.," Lancaster Co., Pa. A good plan to follow in cases of chronic founder, for relief—there is no cure—is to procure a water-tight box, about four inches deep, and put the horse's feet into it. The shoes should be removed previously. Then pour hot water into the box, and let the feet remain in the bath for fifteen minutes. Then place plenty of sawdust under the feet, and wet it well with water. Repeat this treatment for a few evenings. The horse should have rest for some days afterwards.

Flexible Double-tree.—"J. S. W.," Goshen, O. There is no advantage gained by attaching a spring to a double-tree. Exactly the same force must be applied in drawing the load; and if an obstacle is struck, although the jar may be eased at the moment, yet the reaction of the spring would exert on the whole exactly the same force on the horse's shoulders as though there were no spring. The principle is in use for other purposes, and therefore is not patentable.

Inflammation of the Udder.—"C. R. S.," Iowa City, Iowa. This disease—or garget, as it is often called—affects cows that have been long in milk as well as fresh cows. It is occasioned by cold, or by lying on wet litter, and in such cases is often an accompaniment of rheumatic fever, which may be quickly fatal if relief is not given. The proper treatment is good nursing, warmth, cooling medicine—as, for instance, one pound Epsom salts, one ounce ginger, one pint molasses, and one quart of warm water. The udder should have a large hot poultice of boiled carrots or scalded bran applied to it, and kept in position by means of a broad bandage around the loins. If possible, surgical assistance should be procured, and if not, the above treatment may be kept up for three days, when, if no improvement has occurred, probably the patient will be past any cure.

Wasting of the Frog.—"T. B. T.," Washington Co., Me. When in consequence of continued paring away of the frog (as is too often the case in the common method of shoeing), it can no longer touch the ground, one of the natural processes by which the foot is kept in a healthy condition is prevented. The frog, when allowed to touch the ground at each step, exerts a pressure upon the bones of the foot which is necessary to stimulate certain needed secretions. When this pressure is not exerted, the secretions are stopped, and the play of the bones one upon another when the foot is in action induces inflammation, which results in what is known as navicular disease. Besides, the protection afforded by the frog in its natural condition prevents these bones from being jarred or bruised, but, the protection being wanting, the bones are injured. In the case in question, after a year's delay, the injury is probably beyond repair. The shoes might be removed, however, and the mare turned into a moist pasture, in the hope that the frog might be stimulated into a new growth. Otherwise we know of no resource but to employ a veterinary surgeon.

Milking-Machine.—"J. H.," Hastings Co., Ontario. In using a milking-machine which merely consists of tubes inserted into the teats, as does the one you describe, the milk flows only by means of gravity, possibly aided by contraction of the udder. Therefore, it is doubtful if the milk can be drawn completely from the udder, as is absolutely necessary, and as may be perfectly well done by the hand of the milker, the action of which is very nearly like that of the calf's mouth in the natural process of sucking.

Cheap Transportation.

The delegates to the National Cheap Transportation Association met in Convention in the City of New York on the 8th day of May. A permanent organization was effected with the Hon. Joseph Quincy, of Massachusetts, President; R. H. Ferguson, of Troy, N. Y., Secretary; and H. K. Thurber, of New York, Treasurer. The following resolutions were adopted:

Whereas, The productive industries of the United

States, plantation and farm, mine and factory, commercial and mercantile, are not only the sources of all our national and individual wealth, but also the element on which our very national and individual existence depends; and

Whereas, All national products are the fruits of labor and capital, and as neither labor nor capital will continue actively employed without an equivalent measurably just; and

Whereas, Great material industries are only sustained and prospered by the interchange of the products of one section or country for those of another; and

Whereas, The existing rates of transportation for the varied products of the Union from one part of the country to another and to foreign countries, as well as the transit cost of the commodities required in exchange, are in many instances injurious, and to certain interests absolutely destructive, arising in part, at least, from an insufficiency of avenues; and

Whereas, The great material want of the nation to-day is relief from the present rates of transit upon American products; therefore

Resolved, That the duty of the hour and the mission of this Association is to obtain from Congress and the several State Legislatures such legislation as may be necessary to control and limit by law within proper constitutional and legitimate limits the rates and charges of existing lines of transportation, to increase where practicable the capacity of our present water-ways, and to add such new avenues, both water and rail, as our immensely increased internal commerce demands; so that the producer may be fairly rewarded for his honest toil, the consumer have cheap products, and our almost limitless supplies find foreign markets at rates to compete with the world.

Second: That the cheap transportation, both of persons and property, being more conducive to the free movement of the people, and the widest interchange and consumption of the products of the different parts of the Union, are essential to the welfare and prosperity of the country.

Third: That the constant and frequent association of the inhabitants of remote parts of the United States is not only desirable but necessary, for the maintenance of a homogeneous and harmonious population within the vast area of our territory.

Fourth: That the best interests of the different parts of the country also demand the freest possible interchange of the industrial products of the varied climates and industries of the United States, so that breadstuffs, textile fibers, coal, lumber, iron, sugar, and various other products, local in their production but general in their consumption, may all reach the consumer at the least practicable cost of transportation; and that an arbitrary and unnecessary tax levied by the transporter, over and above a fair remuneration for the investment, is a burden upon the producer and the consumer that it is the part of wise statesmanship to remove.

Fifth: That certain leading railway corporations of the country, although chartered to subserve the public welfare and endowed with the right of eminent domain solely for that reason, have proved themselves practically monopolies, and become the tools of avaricious and unscrupulous capitalists, to be used to plunder the public, enrich themselves, and impoverish the country through which they run.

Sixth: That many of the railway corporations of the United States have not only disregarded the public convenience and prosperity, but have oppressed the citizen, bribed our legislatures, and defied our executives and judges, and stand to-day the most menacing danger to American liberty and to republican government.

Seventh: That the present system of railway management, having failed to meet the just expectations and demands of a long-suffering people, must be radically reformed and controlled by the strong hand of law, both state and national, and railway corporations compelled to perform their proper functions as the servants and not the masters of the people.

Eighth: That to this end we invoke the aid of all fair-minded men in all States of the Union in expelling and excluding from the halls of legislation, from our executive offices, and from the bench, such railway officials, railway attorneys, or other hirelings as prostitute public office to the base uses of private gain.

Ninth: That leaving different sections and interests that desire cheap transportation to work out the problem in such manner as they may deem best, we earnestly invoke their careful consideration, their energetic action, and their resolute will in regulating and controlling the rates of transportation, and giving remunerative wages to the producer and cheap products to the consumer, untaxed by unearned charges for their carriage.

Tenth: That we invite the people of the various States to organize subsidiary associations, state, county, and town, to cooperate with the National association; that the power to accomplish the purposes desired rests abso-

lutely with the suffering millions; relief is within their reach and control; united action and the near future will give, as certain as its need, for all time, and the good of all, the true solution of the problem of cheap transportation.

A committee was appointed to prepare an address to the people of the United States. It consisted of Josiah Quincy, of Boston, M. B. Wilber, of Michigan, Horace Day, New York, R. H. Ferguson, of Troy, N. Y., H. Bronson, of Kansas, J. A. Noonan, of Wisconsin, and W. H. C. Price, of New York. The convention then adjourned to meet at Washington in January next. During the interval the address will be issued, and organizations will be effected throughout the country to cooperate in the work.

The American Pomological Society.

Many of the members of the Pomological Society have felt highly indignant at the course of the Secretary. This individual has taken advantage of his position to insult the whole agricultural and horticultural press of the country. The gentlemen of the press have abundant cause for dissatisfaction, and all right-thinking members feel mortified that the Society's official publication should be made the medium for the venting of individual spleen. The particular act of the Secretary referred to is a footnote on page 80 of the last volume of Proceedings, beginning: "The Secretary would here remark that conductors of journals and publishers of books are utterly ignorant of varieties of fruits and plants," etc. As a statement this is false, as is what follows in the remainder of the note. No abuse from the individual who fills the office of secretary would be considered of importance, but when it comes from one speaking as an officer of an important Society in the official record of the Society, the case is bravely altered.

When this note appeared, we held consultation with several officers and members of the Society, and it was concluded best not to wash dirty linen in public, and to let the thing pass until the meeting of the Society in September next. Some of our contemporaries have thought differently, and have presented the subject to the public in their papers. Rather than be thought indifferent to this insult to the press, we reluctantly change our resolution to keep silent. Perhaps we can best record our protest against this act of the Secretary by giving the remarks of two of our neighbors. The agricultural editor of the Weekly Sun had a most vigorous article upon the subject. Moore's Rural New Yorker of May 3d has the following:

"THE AMERICAN POMOLOGICAL SOCIETY.—Hadt friend Elliott, Secretary of the American Pomological Society, better keep still? In a recent letter published in a Western paper, he quotes a correspondent as saying that 'one editor of a weekly paper in New York City has tried to break down the Association because it did not meet his views.' Why didn't Elliott tell that correspondent that the statement was false; for no one knows better than Mr. Elliott that it is not true. The fact is, the Secretary made an ass of himself and got criticised for it, as he deserved; and if he don't stop doing it hereafter, the American Pomological Society will find he is too big a burden to carry with comfort. Would Mr. Elliott have the public believe that when any one criticises his injudicious and untruthful statements, the party doing it is trying to 'break down' the American Pomological Society? If that is his object, he will find he has a bigger job on his hands than he has before undertaken."

The Horticulturist for May is still more pointed, it says:

"A NEW DEPARTURE NEEDED."

"Mutterings of discontent have reached us in various ways from many members of the American Pomological Society, respecting its Secretaryship.

"Probably at its coming session next fall, no question will be considered with more anxiety than this, and upon its solution will largely depend the future success of the Society, and harmony be preserved among the leading pomologists of the country.

"The present Secretary has committed an unpardonable blunder, one deeply deplored by the other leading officers of the Society, and has placed himself in a position calculated to draw out much determined and persistent opposition.

"For the past two or more years, flattered with pride of place and an egotistical estimate of his long years of experience in fruits and pomological matters, he has run a free gauntlet with pen and speech, criticising whom he pleased (sometimes most unnecessarily, perhaps even scurrilously, without just cause), and not in the least cautious in the use of uncomplimentary allusions to many of the most influential of the editorial fraternity.

"In the last report of the American Pomological Society, this egotism is carried so far as to appear in the shape of foot notes to several pages, wherein he asserts

and re-asserts in the most positive manner, the comparative ignorance of the editors of all our Agricultural and Horticultural Journals, concerning fruits; and while not disposed to allow them either the credit or benefit derived from a possible practical experience in fruit-culture, he actually intimates that they are responsible for most of the errors in pomological nomenclature, and are ignorant in general.

"Only one person with 'long years of experience,' the great 'I am' 'Secretary of American Pomological Society,' is supposed to have a correct knowledge of pomology, and all are expected to play second fiddle to this noble functionary.

"We are supremely disgusted, doubtless the public are too, with these airs of assumption. These foot notes we will collate and reproduce in our next number.

"By this abuse of the liberty of his position (for none of the other executive officers saw or knew of these notes until the reports were all printed and ready for distribution), the Secretary has not only arrayed himself in the most direct antagonism to the press of the country, but has thrown to them an insult, which every high-minded journalist will resent.

"We say to the American Pomological Society, this is disastrous to you. Your officers should be in perfect harmony with the press. You should seek its cooperation. It is your most efficient ally; insult or despise them, and your own influence and success will wane.

"Take a new departure; let your future Secretary be one whom all will delight to honor, and toward whom the press will cheerfully offer every assistance, and who will cooperate in helping your Society toward still greater success and reputation.

"Our thoughts for a long time past have often turned toward one who we believe would receive the unanimous support of the horticultural world; others have lately mentioned the same name to us, and we now break the long-kept silence we have maintained for the past four years, by proposing the nomination for the next Secretaryship in the well known name of Hon. W. C. Flagg, of Illinois, Horticultural Editor of The Prairie Farmer. Who seconds?"

The American Pomological Society is largely indebted to the press for the influential position it now holds. The columns of the horticultural and agricultural papers throughout the country have been open to it without cost, and the only return it makes is through its Secretary, who informs the conductors of these journals that they are a set of asses. We shall see what will come of it.

Bee Notes.—Advice to Beginners.

BY M. QUINCY.

It is said that we can accustom ourselves to very monotonous things until they become pleasant—which is probably true. Now, to the man who considers it irksome to open often a hive of bees with movable combs, and look it all through to be sure of its condition, without expecting to do any particular thing, I would say that by doing so he will not only be likely to find it pleasant, but that he will gain courage, learn to avoid stings, get a knowledge of the natural history of the bee, and learn to distinguish between a thrifty and an unthrifty stock. The thriving farmer visits his growing crops scores of times without any idea that there is a necessity for it at the time, but often finds a rail of the fence displaced, a bar left down, or an insect just commencing its ravages, the timely discovery of which saves dollars. Instead of deciding to cut his grain on a particular day of the month, he notes the appearance of the crop as the season advances, and his familiarity with the subject enables him to choose the proper time. Just so the apiarian who is familiar with the appearance of his bees will detect anything amiss or see what is needed. If he is desirous to increase his stocks to the utmost by artificial swarms, he will be guided by the yield of honey and the condition of the old stock as to the best time to make them. If box honey is wanted most, let him supply boxes plentifully. But the hive should be filled with bees before acting in either case.

Hives in which to put bees should be constructed on the following principle: 1st. Let the combs be movable. 2d. Let there be room for at least 150 lbs. of honey. Such hives cost more money, but are cheaper than the writer once made for 37½ cents. A gradual change from the rough box, through several modifications, brought us to the present convenient hive here described. Make the bottom of smooth boards, 21 x 25 inches square; cut out of the center a piece six or eight inches square; cover the upper side of the opening with wire-cloth to prevent a bee getting through. Make a slide for the under side that will graduate the ventilation according to the weather, from none at all to a full-sized entrance for the air. Make a frame of near the following dimensions: Take half-inch strips, an inch and a half wide and

eleven inches long, for the ends. Two more, eighteen inches long by one inch wide, for top and bottom. Drive the nails through the end pieces. The bottom piece should be one-fourth inch from the bottom of hive to give the bees a chance to creep under. If combs are to be transferred, the top may be left square. If combs are to be built, a guide should be put in the center to make them go straight—a triangular piece will do. Take a piece of hoop-iron three-fourths inch wide, three inches long; one-fourth of an inch from one end, bend it at right-angles. Punch two holes through the long part, and nail or screw it on one of the lower corners of the frame. The angle or short part bent should be near an eighth of an inch below the end, that it may hook on another piece of straight hoop-iron, that is nailed on one edge of the bottom the longest way. One edge should project a quarter of an inch beyond the bottom. Hook on the frame, and it stands there firmly. Cut out a thin board just the size of frame, and set one on each side; cover the top with a board or canvas, and you have a hive for bees. Make an entrance in the bottom under the end of frame, opposite to the one hooked. When fixed in this way, it is unnecessary to talk of small or large hives. You have only to add frames until as large as wanted—varying from one to sixteen on this bottom board. A part may be taken out at any time. If box-honey is the object, seven frames are enough. For extracting the honey all will be wanted.

Our boxes are made to set by the side of the frames full of combs, and also on the top of frames, so close that the bees can enter them without moving an inch from the main apartment. The width of the boxes should be calculated so that three or four will be just equal to the length of frame. The length about six inches. The height should be such that two when set on a thin board laid under them would make them just even with the top of frames. We use sixteen at the sides and eight on the top, usually, of full hives. If they are still crowded with bees, and have started combs in boxes on the top, slip them from the center, and let them stand on the boxes at the side, putting eight more in their places; making thirty-two five-pound boxes on at once. The bees enter the top outside ones from those in the middle. When the stock is not strong enough to fill the boxes, take from one or both sides—putting up the boards to keep the bees close. Change the part full ones to the top, or to any other hive to be finished. If there are not bees enough to work in any of the boxes take all off. The boxes are made of glass—described in "Bee-Keeping Explained"—except the end next the comb, which is put in a little narrower than the box to leave a passage for the bees from the combs in the hive. These frames and boxes when all in place must not be exposed to the light and weather. There should be a cover of some kind. We have found no cheaper way than to make it of smooth, nice boards. Let them be eighteen inches wide for the height of hive. Cut the pieces long enough to make a box one inch larger than the bottom board on the back side. The corners simply halved. Batten them outside two inches from the end to prevent warping. Set them together without nailing, holding with latch; or, what is still better, a metal clasp that will draw equally from both ways, is adjusted as readily as a latch, and will hold as firmly as nails—a device of my own, and not patented. Nail a strip on the back side of bottom board, one and a half inch wide, the length of the same end, and one-eighth inch lower than the upper surface of bottom. The two ends may have dovetail-joints to enter the bottom to prevent slipping about. A plain board with molding for lid or cover, to make all close, constitutes what may be called a hive, without the boxes and frames. It can be opened when full of bees in a few seconds, and the contents of boxes inspected without any bees flying. Let the front side of hive remain standing in place during the operation. Bees that are at work will enter without hesitation.

To hive a natural swarm in this hive, take off one end and remove the boxes, unless the swarm is large; in that case, let the top ones remain. Set up a panel by the side of frame. Throw over a blanket, and let it hang down on the open side, within an inch of the bottom. Get the bees in a box, and bring them to the stand for a new hive. Let them stand until near sun-down if you choose; then raise the lower edge of blanket six or eight inches; an assistant may hold it until the operator can empty the swarm, as he would so much grain, directly under the frames. Let down the blanket, and they will probably be hived without further trouble. If the queen has her wing cut off, and can not fly, catch her when the swarm issues, and when they begin to return—which they do as soon as the queen is missed—take away the old hive and cover it up with a blanket for a few minutes. Set the new one in its place, and put the queen at the entrance, when they will all enter. They may cluster about the entrance and perhaps choke it up for a time. With the feather end of a quill the bees may be brushed away occasionally, and thus facilitate operations. Leave

the old hive in a new place, a rod or more from the old stand. When the stock is in movable combs, and it is certain they are getting honey, and there are bees enough to spare a swarm, lift out a comb, near the middle of a fair day, and if the queen is not put that with the bees that are on it into a new hive, close it up and set it on the old stand, setting the old hive in a new place, and you have an artificial swarm. One week after the first swarm with an old queen, open the old hive, and cut off all the queen-cells but one, to prevent the second swarm, which should not issue if you want box-honey. If you have a spare fertile queen to introduce, cut off all the cells, smear the queen in honey, and drop her in at the top. She commences laying in a day or two, and a fortnight in breeding is gained, which at this time is almost equivalent to a swarm of bees. For directions for rearing queens, see "Bee-keeping Explained" for the present. This is a good time to introduce an Italian queen to black bees. Much is gained by having hives, frames, and boxes all alike, so that they may be exchanged and fit any place. Very many do not comprehend every point in the hive I have endeavored to describe, and prefer to send for one complete as a pattern to work from, which for some is the surest way. This hive is not patented, and any one has the right to make and use. It combines all the improvements and conveniences that we have been able to obtain up to the present time. The matter of extract-honey is deferred until another month.

A Gallery of Portraits.

On the first page will be found a collection of portraits of bulls of some of the principal breeds of cattle famed for beef, the dairy, or for the yoke. In the center, the artist has very properly placed the noble Shorthorn, in which we have a representative of agricultural aristocracy. The high consideration in which this breed is held, both in America and England, and the correspondingly enormous prices which have been paid by breeders for first-rate specimens, have elevated them far above the reach of ordinary farmers. But yet one can not traverse any district of the country without finding the impress of this breed upon our native stock; and it is quite safe to say that the additional value thereby gained already fairly warrants those who can afford it in paying the extremely high prices which they readily command in the market. On the left is seen the equally favored Jersey. While the former represents the choicest of the beef stock, this breed furnishes the choicest dairy products. The magnificent form of the first is fairly placed in contrast with the delicate figure of the second. Peculiarly gentle, placid, prolific, and profitable, it has become a necessity in every well-appointed dairy, while its beauty renders it a desirable object where ornament is considered before cost. On the right is a representative of a race which, once occupying the position at present held by the Shorthorn, has almost disappeared from view. "Two stars keep not their motion in one sphere," and the Longhorns have been superseded by their rivals the now fashionable Shorthorns. Their place as to utility is filled in a measure by the Holstein and the Hereford, the one probably the heaviest milker as a race, and the other the best feeder and grazer for common purposes of all the breeds now in existence. On either side of the Holstein, which, by the way, is the only representative of Continental European races that we possess in this country to any extent, are the two chief Scotch breeds, the Polled on the right and the Scotch or Highland on the left. Although but little known as yet on our pastures, their active habits, hardy constitutions, and their adaptation to rough or exposed districts seem to make them desirable in many parts of the country where the heavier cattle would deteriorate. The old-fashioned but trustworthy Devon at the lower left-hand remains, as

it probably ever will, the best working ox of all the breeds. While these cattle are not generally profitable in the dairy, yet their appearance, characterized by a solid dark red color, very compact round form, with their hardness, activity, and excellent beef-producing capacity, will always make them not only favorites with many, but a positive necessity in districts similar to New England or the Alleghany ranges. Last and not least of all, the little Kerry, aptly placed just beneath his stately cousin, is the most diminutive of all cattle, and on that account, perhaps, is sought after as a pet as much as for the rich milk which it gives in a proportionately very large quantity. Of late the Kerrys have become much more popular than formerly for family cows, on account of their low cost of keeping and the ease with which they can be handled.

Ogden Farm Papers.—No. 40.

I have often been asked to give the total product of my herd, per head. My readers naturally want to know the facts and figures on which I base my recommendation of the Jersey cow as the most profitable for a common farmer to keep. I have not answered these inquiries simply because I could not. I am often away from home, my house is four miles away from the farm, and my time is much engrossed with other affairs.

We are buying and selling pretty constantly, and we keep a good many cows which have passed the period of their usefulness for the dairy simply for the sake of their calves. The most that is possible is to single out particular animals and state their performance. As a perfectly fair specimen of the smaller type of the herd, I will instance the case of "Flora Hinman," a thorough-bred, which weighs now—after dropping her second calf, and when she is three years and four months old—603 lbs. Her first calf was dropped November 10th, 1871, when she was twenty-three months old. The milk did not go into the dairy until Dec. 3d. From that time, we carefully weighed all her milk until April 13th, 1873, when she was dried off preparatory to her second calving (April 23d). I divide her record into 18 periods of four weeks each. It stands as follows: 1st, 500½ lbs.; 2d, 419 lbs.; 3d, 346½ lbs.; 4th, 361½ lbs.; 5th, 389½ lbs.; 6th, 331 lbs.; 7th, 309 lbs.; 8th, 330½ lbs.; 9th, 344½ lbs.; 10th, 306 lbs.; 11th, 265½ lbs.; 12th, 23½ lbs.; 13th, 184½ lbs.; 14th, 209½ lbs.; 15th, 110 lbs.; 16th, 181 lbs.; 17th, 216½ lbs.; 18th, 89 lbs. Total in 72 weeks, 5,177½ lbs. This is over 8½ times her own weight at the end of the period—and probably over 10 times her weight at its commencement. Taking 2½/100 lbs. milk as equal to a quart, she gave 2,408 quarts. I am confident that for the average of her milking period, two winters and one summer, 15 lbs. of her milk would make a pound of butter, and that she actually produced between her two calvings, 345 lbs. of butter. To apply a more severe test, we will take her yield during the year before her second calving, beginning April 23d, 1872. Her yield was 3,160 lbs. of milk, or (by the above computation) 210½ lbs. of butter. She had no extra care, and was never in high condition. No well-kept native dairy cow of average size could possibly have been kept on the same fodder; while to yield as much butter in proportion to her weight she must produce over 300 lbs. in her last year, commencing more than five months after dropping her calf, and her first calf at

that, and counting the full time to her second calving.

I am glad to be able to give the record of the full herd of my neighbor, Mr. Andrew Robeson. Eight Herd-book Jerseys as follows:

	Age.	Weight, April 23, '73.
Locket.....	5 years.	895 lbs.
Gala.....	5 years.	820 lbs.
Rosemary.....	4 years.	790 lbs.
Zoe Le Bas.....	4 years.	830 lbs.
Silver Gray.....	7 years.	740 lbs.
Alice.....	8 years.	910 lbs.
Zillah.....	4 years.	760 lbs.
Cannie.....	5 years.	1,050 lbs.

NOTE.—Rosemary, Zillah, and Cannie are heavy with calf.

These cows were well kept, and their milk was regularly weighed at each milking from the time their calves were removed until they were dried off, or until the percentage of cream was proven by the lactometer twice a month for the date of this report the whole time. The following is their performance:

Name.	Date of Beginning Record.	Number of Days in Milk.	Total Milk in Pounds.	Daily Aver- age in Pounds.	Average per- centage of Cream.
Locket.....	April 13, '73	265	5065½	19 11/100	19.20
Gala.....	Feb. 12, '73	370	7580½	20 4/100	16.87
Rosemary.....	April 12, '73	252	3069½	12 18/100	19.65
Zoe Le Bas.....	April 23, '73	304	4760	15 68/100	16.46
Silver Gray.....	May 2, '73	303	6054½	19 98/100	15.37
Alice.....	May 2, '73	300	6706½	22 35/100	16.52
Zillah.....	June 12, '73	262	6122½	23 67/100	11.49
Cannie.....	July 9, '73	266	5169	19 43/100	17.62
Average of all.....		290	5566	19 2/100	16.64

This is a perfectly reliable statement, based on accurate records, and made by a gentleman of character who has spared no pains to get the best cows of the breed, and to keep them in the very best manner. From an intimate personal knowledge of his herd, I do not hesitate to indorse his statements in all particulars. He uses cream in his family without stint, and has not been able to learn from actual trial how much butter his herd would make in a year. It would, however, be safe to calculate that, taking the year through, the cream from Jersey cows will make a pound of butter per quart. Mr. Thomas Horsfall, of England—the best authority on this subject—found, on two trials, that 15 quarts of cream yielded 24¾ ounces of butter per quart, and that 14 quarts of cream yielded 25½ ounces per quart. His milk was set in shallow pans, and the cream would naturally dry out much more than in the lactometer; but this would not increase the rate from 16 ounces to 25 ounces. In my own practice (using deep cans, which expose even less surface to the air than the lactometer does), I find that one quart of cream will make more than one pound of butter. Now, Mr. Robeson's herd gave, during an average period of 290 days, 430 quarts of cream per cow, and "of the whole amount of cream he churned during the year 1,409½ quarts, and made, therefrom, 1,333½ pounds butter. This shows a yearly average of 407 pounds butter per cow."

The story is a large one, and I am quite prepared to have those who do not know me call it a tough one—but I believe it, nevertheless. At the same time, it is not an example that many can follow. The breeding herd at Ogden Farm won't begin to equal it. Indeed, very few can afford the money, nor have they the intelligent skill required to get together eight Herd-book Jerseys of such excellence. These have been bought in Jersey and here, and bred and weeded out for years with an eye to securing as nearly absolute perfection as has been

possible within the time. That they will still further improve under their intelligent management is unquestionable.

While the results of this instance of successful farming are beyond the probable reach of any "ordinary" farmer, it is none the less valuable as an example. In any well-regulated dairy in which only common cows are kept, I think that an average annual yield of *one-half* that of Mr. Robeson's Jerseys, or 203 lbs., would be considered very satisfactory, and this from cows of greater weight, and so requiring more food. The question arises: How can we make a fair beginning on the other half?—how get to 300 lbs? The answer involves a good many things, but it will depend more on the infusion of Jersey blood than on anything else. A half-bred Jersey is *very much* better than a native, and a three-quarter-bred one is still better. One bull will suffice to inaugurate an improvement in a large herd, which in even two generations (or in six or eight years) will more than double the profit of the dairy. Even a small addition to the yield will double the profit, for it will cost no more to support the grades than the natives, the quality will be better (and the selling price higher), and none of the expenses will be materially increased.

In this connection it may be well to quote from the Jersey Herd Register the statement of Mr. Chas. M. Beach, of Hartford, Ct. (personally known to me as a careful and trustworthy observer). He "made a careful experiment with three pure Jersey cows, three grade cows, and three native cows, an experiment which was carefully conducted for a week. The animals were in essentially the same condition, and were kept on the same food. Each lot averaged about the same time for calving. It was found that to make one pound of butter the following quantity of milk from each sort of cow was required: Three pure Jerseys, 6½ quarts; three grades, 8¼ quarts; three natives, 11 quarts. According to this, a Jersey cow giving about 12½ quarts of milk per day, or a grade giving 16½ quarts, would make as much butter as a native cow giving 22 quarts." Of course, the grades must vary according to their proportion of Jersey blood. In Mr. Beach's experiment, one was one-half Jersey, one three-quarters, and one seven-eighths.

Those who believe that the best Jerseys have the "solid color and full black points" will not find their theories sustained by an examination of Mr. Robeson's herd. I think he has not one animal of this character. He prefers the lighter fawns and grays, with some white, and his imported bull "Orange-peel," which he himself selected in Jersey, was light fawn with considerable white. At the same time, color is only a secondary object with him, and no promising heifer is sold until her milking quality has been proven. Mr. Thomas Motley, who is one of the oldest and one of the very best Jersey breeders in New England, is now raising for his own use a bull that is fully one-third white.

The solid color men will be glad, on the other hand, to know that the cattle which Col. R. M. Hoe recently sold at auction for very high prices—a nine-months-old bull for \$560, and four cows respectively for \$560, \$640, \$700, and \$605—were mainly of their favorite marking. This sale indicates that color brings the highest prices. Shall we then breed mainly for color? I decidedly shall not. The object is not a wise one, and to seek it because of tem-

porary high prices is a prostitution of breeding that can not result in the good of the race nor in the good of the dairyman. The Jerseys as a race are very valuable to the country, not because of their conformity to a passing fashion, but because of their ability to yield a large product of good butter, and it is their value in this respect that must redound to the greatest eventual profit of their breeders. Then again, on the mere score of beauty, I would be glad to have the very blackest of the black-point men see Mr. Robeson's cattle tethered on his lawn. They will answer this disputed question more convincingly than any writing can do.

Much has been said and written about the best treatment of calves, and so many have advised their immediate removal that we this spring ventured to try it. Out of four so treated (all heifers, worth \$100 each when they were dropped), one died before it was a week old, another is scouring so badly that we have but little hope of its recovery, and a third is ailing and weakly. We have had quite enough of this treatment, and shall return to our custom of leaving all calves with their mothers until they are at least three days old, and longer if necessary to start them fairly and vigorously on the road of life, a practice which has hitherto produced the most satisfactory results.

I have also experimented—until I have regretted it—on another theory of some modern breeders of Jerseys—that is, to milk the cows quite up to the time of calving, if possible. In every case, I am convinced that real and probably permanent injury has resulted. The idea advanced was that a Jersey cow has no other purpose but to bring calves and to produce milk, and that she should be trained to the fullest and most persistent exercise of the lacteal function. The subject has been presented to me so long and so persuasively, and by men whose opinion seemed so well worthy of respect, that I had come to more than half believe it, and have tried the experiment this spring with several animals. In every case there has been trouble with the udder, and thus far the flow of milk is less than it was after the previous calving. The calves have not been materially affected by it, but the mothers have been in every instance. Hereafter, we shall endeavor to dry off all of the cows a month before calving. Up to that time it is well to keep the milk flowing (if only a pint a day), and with Jerseys it is almost always easy to do this; but after that the milking should cease, and the udder should be allowed to become entirely empty of milk preparatory to the commencement of its new period of activity—"springing" regularly and naturally, and having no trace of the old love when it begins with the new.

Another experiment we are now making, that will have more influence on the prosperity of the farm than any other could have (for the Labor question is become the most vital of all), Haubrich and his family have gone—gone to the West, that ultimate haven of all immigrating Deutchers—and the Dudeldorfers, whom I hunted up in Germany last autumn, are installed in their place. How it will work, I don't know. Thus far, it seems a very good combination of new broom and young blood, and we hope for a continuance of the improvement; but one is apt often to sigh for the good old days when good American farm-hands worked contentedly for years on the same farm.

The Cedar-bird.

The farmer or fruit-grower has a way of classifying birds very different from that of the naturalist. He makes two great classes only, friends and foes, and his chief interest in any given species is to know in which class to place it. Unfortunately, the boundary between these two divisions is a not very definite one, and if we were asked upon which side to place the Cedar-bird we should have to give the Frenchman's ever-ready answer, "That depends." If the bird be watched during grub-time—we mean the season of grubs—when caterpillars, tent and others, and worms, canker and others, do mostly abound, it would be ranked at once among the useful ones. All these soft creeping things, so destructive to foliage, are choice morsels to young Cedar-birds, and the old ones display an industry in removing these enemies to our trees and shrubs that is none the less useful to us on account of its being prompted by a selfish motive in them. The little family in the nest must be fed, and the busy parents in foraging for their young dispose of multitudes of our annoying insects. But in cherry-time! Then the Cedar-bird appears in altogether a different light. One of their little flocks—they usually go in squads of a dozen or twenty—will make cherries disappear with a rapidity only equaled by a boy who is in somebody else's cherry-tree, and is afraid the owner will catch him. The young birds seem by this time to have become decided vegetarians. Animal food was well enough in cooler weather and for growing young, but in the hot July days old and young prefer the refreshing fruit. At this season, the fruit-grower is quite sure that the Cedar-bird belongs among his enemies, and forgetful of former good offices bangs away at him with a clear conscience. It is not the cherry alone that this bird fancies, but apples and other fruits are quite to its taste; but perhaps we notice the loss of the early fruit more readily. When the cherries disappear as fast as they ripen, we are not in the proper mental condition to strike a fair balance-sheet with the

birds. If the insects were unmolested, there would be no leaves, and consequently no fruit. If the birds take all the insects, and then take all the fruit, we are just where we would have been had the birds not visited us. The question

By destroying the natural food of insects we concentrate them upon our cultivated plants, and as a matter of course the birds follow the insects. Fruit-growing, like all other cultivation, is a constant struggle with difficulties, and this problem of the relation of birds to horticulture is one of the difficult ones. Those who have given the most thought to the matter regard birds upon the whole as beneficial, and that, although we are obliged in many cases to pay a heavy price for their services, it is true economy to accept them. A closer observation of the habits of all our common birds at all seasons while they are with us, will enable us to judge them more fairly than we are in the habit of doing. The only exact way in which to come at a proper estimate of the usefulness or otherwise of any species, is to kill one each week or two of the season, and put the contents of its stomach into a box or bottle, and label it with the name of the bird and the date. At the end of the season this collection will show at a glance what work the species has done. The Cedar-bird (*Ampelis cedrorum*) is almost too well known to need a description. Our engraving gives its form; its length is $7\frac{1}{2}$ inches; its plumage is of the most neat and silky character, and though not brilliant is called beautiful.



THE CEDAR-BIRD.—(*Ampelis cedrorum*.)

seems to be, Can we not raise fruit enough for the birds and ourselves, too? In a natural state of things, the balance between plant, insect, and bird is well enough preserved, neither predominating to the serious detriment of the other. If the insect-eating birds become too

ter, and though not brilliant is called beautiful.

The Sardine Fishery.

"What are Sardines?" asks a correspondent. This is a question which has before now puzzled the naturalists.



FISHING FOR SARDINES.

The name was originally applied to a small fish taken off the coast of Sardinia, *Clupea Sardina*, and is a mature fish, while the greater bulk of the Sardines of commerce are caught off the north-west coast of France, and are the young of the Pilchard, another species of *Clupea* (*C. pilchardus*), which when mature is about the size of a Herring. The young of several other kind of fish also find their way into the market as Sardines, and when properly preserved are undistinguishable from

numerous, bird-eating birds and other animals keep them in check. In our cultivation, we have disturbed this nice adjustment of things.

the genuine except by those wise in such matters. Our engraving represents a scene at one of the celebrated Sardine localities off the

the genuine except by those wise in such matters. Our engraving represents a scene at one of the celebrated Sardine localities off the

coast of France. The small fish appear in myriads, and are caught in nets, a bait—the spawn of other fish—being thrown over to keep the schools together. The fishermen sell their catch to the establishments that make a business of preserving them. The Sardines are cleaned and the heads removed, sprinkled with salt, and then slightly dried on wicker frames. They are then cooked in boiling olive oil, drained, placed in tin cans or boxes, which are filled up with fresh boiling oil, and the lid carefully soldered on. The cases, after stamping and labeling, are ready for the market. The Sardine is a minute fish, and no one person consumes a great number, yet in the aggregate the amount expended for them is something astonishing. Nantes is the head-quarters of the business, and over three thousand boats, carrying five men each, belong to that port, and the annual export from that place is some 30,000,000 cans. Sardines are regarded as an article of luxury, rather than as a staple food. They are so exceedingly rich, that those of weak digestive powers can not tolerate them. Their chief consumption is at lunches, upon pic-nic and other pleasure parties, and by travelers. For these purposes they are very popular, as they require no preparation. By way of variety, they form an acceptable addition to the breakfast table, although they are more frequently used thus by Europeans than by Americans.

Walks and Talks on the Farm.—No. 114.

J. J. Thomas writes: "I would be glad to see in the 'Walks and Talks on the Farm' some remarks on the common opinion that manure spread in summer wastes by exposure to the air. I have not performed experiments in this way, but have long been in the practice of spreading manure both in autumn and winter, more especially on grass to be plowed under for corn in spring. The complete diffusion of the soluble manure by rains and melting snows renders it about twice as useful as by the more imperfect mechanical intermixture when spread and plowed under in spring. Now, suppose manure is spread early in summer on grass or other land, will not rains wash it into the soil equally well? If the summer is dry, why will not the manure lie on the surface until the rain comes? What becomes of it? I am aware that this inquiry is often made, but I would like to have an answer, and would esteem it an especial favor."

If we spread say 15 tons of ordinary barn-yard manure on an acre of grass-land in the spring it makes quite a show. But harrow it two or three times at intervals of a few days, and it is surprising how rapidly it disappears. "What becomes of it?" This 15 tons of ordinary manure would probably be composed of

Water.....	22,000 lbs.
Carbonaceous matter.....	7,000 lbs.
Mineral matter.....	850 lbs.
Nitrogen.	150 lbs.
	30,000 lbs.

In our dry climate and in hot summer weather the 22,000 lbs. of water would soon evaporate. We should then have 8,000 lbs. of dry matter spread over an acre, or not quite three ounces on a square foot. If this matter was reduced to powder it could hardly be seen on the surface of the land, and we might think that the manure had gone to waste, while in point of fact nothing had been lost but water. In this 8,000 lbs. of dry manure there is 7,000 lbs.

of carbon, hydrogen, and oxygen. It is believed to possess comparatively little fertilizing value. All that we have to look to, then, is the 850 lbs. of mineral matter, and the 150 lbs. of nitrogen. No one supposes that the mineral matter will waste by exposure to the atmosphere. The only risk of loss is from the evaporation of the 150 lbs. of nitrogen. It was formerly supposed that the nitrogen in fermented manure existed in the form of carbonate of ammonia, and that when the manure was exposed to the atmosphere the ammonia evaporated. The carbonate of ammonia would evaporate; but it has been ascertained that barn-yard manure rarely contains any carbonate of ammonia.

If we should spread 15 tons of green clover on an acre of land we should furnish

Water.....	24,000 lbs.
Carbon, etc.....	5,420 lbs.
Mineral matter.....	400 lbs.
Nitrogen.....	180 lbs.
	30,000 lbs.

The nitrogen in the clover exists in the form of substances analogous to albumen or white of egg, and which it is convenient to speak of as "albuminoids." They are what are sometimes called the "flesh-forming principles" of food, as distinguished from the carbonaceous or "heat-forming principles." The 15 tons of green clover contain a little over half a ton of albuminoids, and nearly 2½ tons of carbonaceous matter. As before stated, these albuminoids in the 15 tons of green clover contain 180 lbs. of nitrogen. For food, the albuminoids, as such, in connection with the carbonaceous matter, are of great value as food for our animals; but for manure the albuminoids are valuable only for the nitrogen which they contain. The plants do not need the albumen as such. It must first be decomposed and converted into ammonia or nitric acid. How to effect this change without loss and at the least expense is what we want to ascertain.

If we plow under the 15 tons of green clover, it will gradually decompose, and sooner or later the albuminoids, with more or less loss of nitrogen in the gaseous form, will be converted into ammonia or nitric acid, and be taken up by the subsequent crops. There are two objections to this plan. (1st.) We plow under about 3,500 lbs. of nutritious food, capable of producing flesh, fat, milk, butter, cheese, and wool, for the mere purpose of furnishing plants with 180 lbs. of nitrogen; and (2d) we do not furnish this nitrogen in a form immediately available as food for plants. It is quite probable that the wheat sown on the land where clover is plowed under does not get more than from one third to one half the nitrogen. The remainder lies dormant in the soil, or is inaccessible to the roots of wheat, and may remain in the soil until taken up by the next crop of clover. In other words, we plow under clover, in part, for the sake of furnishing nitrogen for another crop of clover two, three, or four years hence.

Another plan would be to let the clover lie on the surface of the land. In this case there is danger of losing more or less free nitrogen. The carbon of the clover would be converted into carbonic acid, and the hydrogen into water, and the nitrogen would, to some extent at least, be set free and escape. I do not think, however, that there would usually be any great loss of nitrogen. The half-ton of albuminoids contained in the 15 tons of green clover would be spread on the surface of an acre of land, and would be exposed to the solvent action of a

large quantity of water. An inch of rain gives about 225,000 lbs. of water per acre, and it would seem that when the clover or barn-yard manure was exposed to a few of our drenching rains there would not be much soluble matter left in it. Dr. Voelcker found only 8.50 per cent of albuminoids in clover hay that had been exposed to rain in the field after being cut; while good clover hay contains nearly 16 per cent of albuminoids. The rain had dissolved the albuminoids and carried them into the soil.

But, as before remarked, what the plants need is nitric acid or ammonia; and after the albuminoids are washed into the soil they must be decomposed before they become food for plants. When dissolved in water and carried into the soil, there can be little doubt that this decomposition would proceed much more rapidly than when the clover is plowed under.

If, instead of using this 15 tons of green clover for manure, it was made into hay and fed to animals, and all the liquid and solid excrements carefully saved, we should lose perhaps five per cent of the nitrogen, which is retained in the wool, flesh, etc. But the nitrogen in the excrements is in a very different form from that in the clover. The nitrogen exists largely in the form of urea, a substance containing over 46 per cent of nitrogen, and which as long as it is dry can be preserved for any length of time without decomposition or loss, but when in solution rapidly changes into carbonate of ammonia, etc.

If all the nitrogen in manure existed in the form of urea, uric acid, hippuric acid, urate of ammonia, etc., there would probably be no special advantage in fermenting manure before applying it to the land. The experiments of Dr. Cameron and Prof. S. W. Johnson seem to prove that plants can take up these substances. But still the grand fact remains that in Lawes's and Gilbert's experiments the nitrogen in barn-yard manure does not produce as marked an effect on the crops as the nitrogen in ammonia-salts and nitrates. In other words, the nitrogen in barn-yard manure is largely unavailable.

Barn-yard manure contains more or less straw, and the solid excrements also contain a considerable proportion of undigested material. It is the nitrogen in these substances that is unavailable. And hence the experiments of Johnson and Cameron, showing that plants can take up urea, are not inconsistent with the field experiments of Lawes and Gilbert showing that much of the nitrogen in barn-yard manure will remain dormant in the soil for many years.

What we now need to discover is some method of rendering all the nitrogen in barn-yard manure available. Mr. Thomas, while he does not directly say so, is evidently in favor of spreading the manure on the surface of the land, and letting it lie exposed to the action of the air and rains. The air, aided by the damp soil, dews, etc., would soften and break to pieces the hard, external covering of the straw, and expose the nitrogenous matter, etc., to the action of the next shower of rain, which would dissolve it and carry it into the land, and distribute it more intimately among the particles of soil than it could be done by any mechanical means. There can be no doubt that this plan has many advantages. But we want more facts before we can decide whether there is not a better way. I should not hesitate to adopt it wherever it was convenient.

I prefer to rot manure as thoroughly as possible before applying it to the land. But it is not always easy to do this without loss from leach-

ing. Where it can be well rotted without loss there is manifestly great advantage in doing so. And when it is thoroughly decomposed, I think, where it is convenient, it is better, so far as the immediate effect is concerned, to spread it on the surface of the land rather than to plow it under. But of course much depends on circumstances.

A young farmer in Delaware writes: "In your 'Walks and Talks' for April you say 'there is no necessity for adding sulphate of lime to the manure heap.' I am a young man just starting out on a farm, after working it three years to learn how, rent free and stock and tools furnished. I am making a manure heap, and have been mixing sulphate of lime or plaster pretty thoroughly through it to assist in the fermentation, as I thought, but you have thrown cold water on my hopes."

I am sorry to have done so. The plaster will do no harm, and may do more or less good. But it always makes me savage when agricultural writers lead young men to think that by doing some little thing, such as sowing plaster on a manure heap, or making a "compost" of this or that material, they are going to make their farms and themselves rich. There is no such easy method of making land rich.

"The poorest field on the farm," my correspondent continues, "and which has been in grass the longest, I intend to break up and put in corn. It contains about 16 acres. It is a rather heavy clay loam, with a clay subsoil. I intended to plow it, say six inches deep, and subsoil it, and plant in the old way. But after reading the April number of the *American Agriculturist* I have changed my mind, and think of running the land out one way and manuring in the drills, and then put hen-manure on the corn after it comes up. What do you think of this plan?"

You had better follow the "old way." It is a good deal of work to furrow out and manure 16 acres of corn. It will delay the planting. And besides, sod land plowed this spring can not be furrowed out deep enough to hold the manure. As you get your land "rent free," you can afford to adopt the "slow method" of farming. Summer-fallow your clay land, or if you do not want to do this, plant your corn in hills, cultivate thoroughly, and try to be content with an ordinary crop for this year. Save your manure, and apply it to the grass-land this fall that you intend to raise corn on next summer. You will be the gainer in the end.

The farmers of the West are grumbling about the high rates of freight—and not without cause—but they are no worse off than we are here. We grumble because the railroads will carry wheat and corn and cattle from the West at so much lower rates than they will carry ours. I have no doubt, however, that good will grow out of this agitation.

Mr. Bingham writes me in regard to some experiments he has made in fattening pigs on raw corn as compared with cooked corn-meal. The raw corn was decidedly the best. He seems to have been much surprised at the result. I have never been an enthusiastic advocate of cooking. If I was trying to see how fast I could make a pig grow, I would give him both cooked and uncooked food. I think it very likely that the cooked mush contained too much water. If the pigs had been allowed to eat what mush they wanted, and afterwards

given all the raw corn they would eat, the result might have been very different. It ought to be distinctly understood that the only object of cooking is to enable the animals to eat and digest more food. We cook, not to save food, but to save digestion. If the pigs can eat and digest all the food they can assimilate there is nothing to be gained by cooking—time, labor, and fuel are all thrown away.

Mr. B. sends me a sample of "ship-stuff" that he buys for \$12 per ton. It is a prime article. Common bran he gets for \$8 per ton. If I could get food at such prices I do not think I should spend much time in cooking it. I have to pay \$20 per ton for bran, and \$28 for corn-meal. If I can make anything in producing pork—and taking one year with another I think I can—Mr. B. ought to get rich, for he can get nearly as much for his pork as I can.

We have just lost a valuable Cotswold ewe. She was apparently well until thirty-six hours ago, when we observed that she separated from the rest of the flock. Her head soon commenced to swell. She grew rapidly worse, seemed to have great difficulty in breathing, and in thirty-six hours was dead. Two years ago I lost a sheep in the same way, but not so suddenly.

English farmers often talk about a "rent-paying sheep." I suppose they mean a sheep that is kept by a farmer, rather than a breeder, for no other purpose than to produce mutton and wool. The breeders keep sheep to *show at the Fairs*, and to sell to other breeders and farmers. It is necessary to have such men. They take great pains to improve the breeds and keep them pure. But I think it will be found that neither here nor in England are the "rent-paying" sheep pure-bred. I do not believe that for the mere purpose of raising mutton and wool it will pay to keep a flock of pure-bred South-Downs, Leicester, Cotswold, or Lincoln sheep. I do not think it would pay even in England, and it certainly will not pay here. The "rent-paying" sheep here is a grade. I have to-day (April 19th) weighed a grade Cotswold that is not to exceed a year old. He is out of a common Merino ewe that will not weigh over 80 lbs. He is covered with a splendid fleece of long combing-wool nearly as good as his pure-bred Cotswold sire. He is healthy and hardy, and weighed to-day 166 lbs. He has, of course, been well fed. But it is clear to my mind that if we can take common Merino ewes, and by the use of a pure-bred Cotswold or Leicester ram raise lambs that will weigh after shearing say 150 lbs., it will pay to feed them well.

Three of my pure-bred Cotswold ram lambs weighed to-day 165 lbs., 172 lbs., and 185 lbs. The last was born April 20th, and if to-morrow was not Sunday I would have weighed him on his birthday. As it is, I suppose I may say, "I have a Cotswold sheep, *less than a year old*, that weighs 185 lbs.!" According to the usual estimate of dividing the live-weight by seven to get at the dressed weight per quarter, he would dress 26 lbs. per quarter. I do not think this is bad, but great size is the very last thing I aim at in breeding.

"If it is true," remarks the Deacon, "that we have to draw over 11 tons of water in 15 tons of manure, I think we had better plow under the clover, or at any rate feed it off on the land." I have no objection to the latter plan. It has been well said that sheep are the cheapest

manure-carts. But what we should aim at is to make our manure richer. It would not be a difficult matter to make one ton of manure worth as much as four or five tons of the stuff that some farmers draw out of the yards in spring, and which they call manure.

I was glad to see Col. Waring's remarks about the English hay-stacks. I stack three fourths of my hay in the field where it grows. If I had the money to spare, I should build a big barn, but I thought I could spend my money to better advantage in underdraining and improving the land. And in the mean time I try to persuade myself that there are some advantages in stacking hay in the field. But I know full well that I have some years had more hay damaged in the stacks than would pay the interest on a three-thousand-dollar barn. This was before I learned what a comparatively cheap and simple matter it is to thatch the stacks. I notice in the English agricultural papers that they now have a machine in England for thatching. In fact, I suppose they have different kinds, for one farmer in Shropshire says he finds that the "lock-stitch" machine is the best. From this I conclude it is something on the principle of a sewing-machine. Some of our manufacturers should look into the matter. If the machines are not too costly there would be an extensive demand for them.

I am pretty well satisfied that the true plan is to cut up into chaff all the hay and straw that we feed out to sheep, horses, and cattle. And if the barn is properly arranged for the purpose, a good plan would be to stack the hay in the field; draw it to the barn in the winter; cut it up as we draw it, and have a carrier attached to the machine that would elevate the chaff into the bay or loft. There are, of course, many farms where such a plan will not work, but it would suit me exactly if I could arrange my barns and sheds so that the sheep and cows could be fed the chaff and roots with little labor in handling.

I wish some of our barn architects would turn their attention to designing a barn for feeding on this plan, more especially for sheep. Nearly all our good sheep barns are designed for feeding long hay. But I feel sure that there is great economy in chaffing clover hay for sheep. A given space, too, will hold much more chaffed hay than of uncut hay, and we should require less barn room. Then, too, in feeding long hay we have to go on to the mow to throw down the hay every time we want to feed the sheep; but with chaff this is not necessary. It will fall of its own accord into the feeding-room as fast as it is removed. Can any one give me a description of a good sheep barn on this plan? I want something cheap and simple, with no reference to steaming—say a side-hill barn, that with sheds, etc., would accommodate 200 long-wooled sheep.

Building Dams.

J. H. R. and others will find their inquiries about the construction of dams for small streams answered in this article. The dams here described are suitable for streams of less than 100 feet in width, and in which the head of water to be raised is not over 10 feet. They are formed of timber and loose rock. The timber may be used in the rough, flattened slightly where the cross timbers rest upon each other in cribs such as those shown at figures 1 and 2; or the timber may be squared and framed to-

gether as in that shown at figure 3. Figure 1 shows a crib in very common use, built of round logs. For a stream of 50 feet in width they may

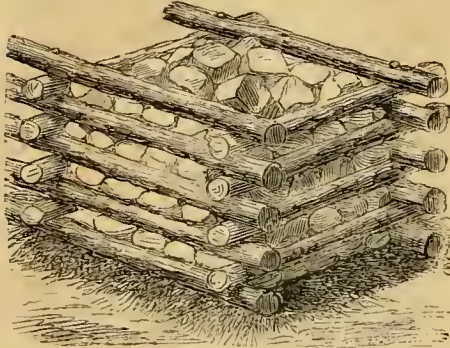


Fig. 1.—COMMON LOG-CRIB.

be made 8 feet long and 6 feet wide, and for larger streams in proportion. The bottom of the crib should have at least four cross-pieces resting on the lowest logs, to which they should be pinned with 2-inch oak pins. The stones with which the crib is filled rest on these cross-pieces and holds the crib to the bottom. The crib may be built on shore until three or four logs high, when it may be launched and finished in the water, and kept in its place with ropes until sunk and filled with stone. The logs should be all firmly pinned together. The cribs may be placed at such distances apart as may be required by the velocity of the stream and the pressure of the water the dam is required to re-

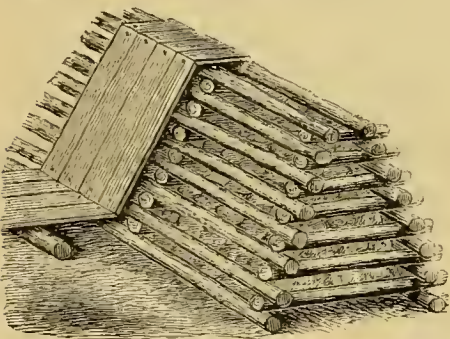


Fig. 2.—CRIB OF SPLICED LOGS.

sist. The intervening spaces may be covered by logs reaching from one crib to another and connecting altogether. Stone is then filled in between them, the bottom is made tight with brush and clay, and earth is thrown in to fill the rear of the dam, or an apron of plank closely fitted is placed at an angle of about 30 degrees, with an apron also of plank at the lower side, and the top of the cribs is also planked over. Another serviceable dam is shown at figure 2. It is built of rough timbers, not in separate

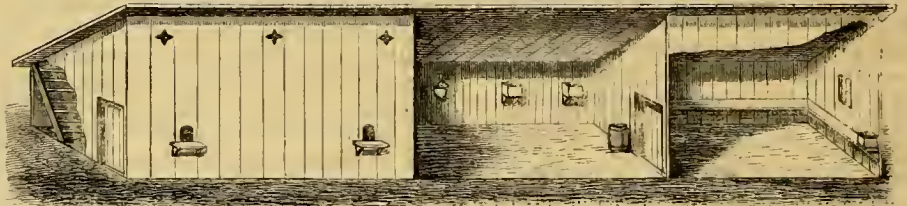


Fig. 3.—SILL AND POST DAM.

cribs, but the timbers are spliced together as may be needed, and they reach quite across the stream. The figure shows a part only of the structure.

Cross timbers are placed about 10 feet or less apart to bind the frame together, and are pinned or spiked firmly. These cross timbers decrease

in length as the frame is built up and the sides meet at the top. The bottom is to be filled with brush and clay, and the front and rear planked tightly. This dam may be made to curve toward the current, which will add much to its strength. On the whole, perhaps this is the simplest, cheapest, and most effective dam of this character that can be built. Another method very suitable for small streams on farms where water power is wanted, or water for irrigation, is shown at fig. 3. This is made by the use of frames consisting of a sill, a post, and one brace, mortised together. As many of these are needed as will permit them to be placed six feet apart across the stream. They are connected by planks 12 feet long spiked on to the sills so as to break joints, the ends of each alternate plank resting on each alternate sill at the lower side of the dam, and these form an apron on which the water falls. Planks are fitted closely on the upper side of the posts, stones are filled

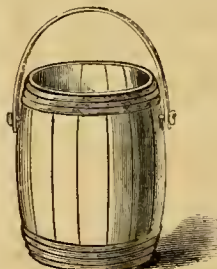


POULTRY-HOUSE WITH LAYING, SITTING AND ROOSTING APARTMENTS.

in behind them, and planks may be spiked on to the braces forming a sloping water way. The bottom should be made water-tight in the usual way by means of fine brush and clay rammed down, or plenty of earth worked in amongst the brush. If the plank covering of a dam leaks it may be made tight by throwing sawdust or fine tan-bark into the stream above the dam, and stirring it and the water together. Leaks in the bottom of a dam may be discovered by stirring a small quantity of sawdust in the water at the bottom of the stream, and noticing the place where it is drawn through by the current. Such a leak may be stopped by forcing a bunch of straw, marsh hay, or fine brush into the hole, and then dumping a few barrow loads of earth over the spot. Musk-rats are not likely to interfere with such dams as are here described.

A Home-made Barn-Pail.

A correspondent favors us with a sketch of a barn pail which has the merits, far from inconsiderable, of costing no money and of being very durable and useful. It is shown in the engraving above, and consists of a butter firkin, which, after filling a term of service as such, becomes of still farther use, and renews its youth as a water-bucket. A stout hoop of ash is made to serve as a handle, by being affixed by wooden pins, as shown in the engraving. Such a pail stands much rougher usage than the ordinary pail, the life of which around the barn is but short.



BARN-PAIL.

CARBOLIC ACID FOR PLEURO-PNEUMONIA.—Now that the cattle in New Jersey have become affected with this disorder, it is of interest to notice the result of some preventive experiments

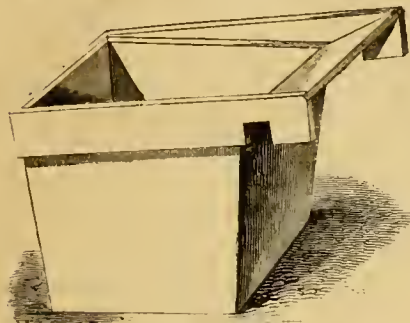
which have been made in England with carbolic acid. In a stable in which there were some sick animals and also well ones, sacks kept saturated with a solution of the common acid in 20 parts of water were hung up in the stalls before each animal, so that the vapor could be breathed by them. The consequence was that the progress of the disease was stayed, and although the treatment did not cure the sick it preserved the health of the well animals.

A Farm Poultry-House.

"A Constant Reader" is in want of a poultry house with separate apartments for roosting, laying, and sitting, that shall be constructed easily and with a moderate outlay. Doubtless, many other of our readers want the same thing, and we present to them an engraving of a combined roosting, sitting, and laying-house, which we have found very convenient, in which we

kept 150 hens and hatched out nearly a thousand young chickens. For this purpose, the main part of the building, the roosting-house, shown in the engraving at the left hand, was 12 x 16 feet, and 12 feet high at front, and 8 feet at the rear, with a sloping roof. The floor was earth, a row of bricks was partly bedded into the earth, and pine scantling, 4 inches square, was laid upon them, with the ends halved and jointed together. These were the sills of the building. The boards were nailed to these sills, commencing at the corners, and scantling of 2 x 4 inches were nailed to them for plates. The building was then boarded up, rafters of inch-boards were let into the front and rear and nailed, sheeting of inch-boards and a roof of shingles was then put on, a door was fitted, entrance holes with fly benches two feet from the ground were made, and a roosting-ladder of sassafras poles, on which, by the way, we never saw any lice, completed the whole. The whole was put up in two days. To this was added the open shed adjoining, and the sitting-house built in the same manner, each of the same size, making the whole 48 feet long. Nests were provided in the open shed and in the roosting-house, all of loose boxes painted with crude petroleum inside and out. When a hen "set," the box and its occupant were removed at night into the sitting-house at the right-hand in the engraving, and placed on the shelf which was fixed around it. There she was kept shut up, but carefully attended to and watched, until the chicks were hatched, when, if she felt disposed, she remained as long as was agreeable, the chicks being removed as they appeared, and fresh eggs being put under her. In this way, some hens brought out two or three broods before their patience was exhausted. This house was cleaned out at night, fresh food and water and sand for baths were put in, and in the daytime it was kept very quiet. When a hen left her nest, which rarely happened, she was taken out and another quietly put on. This may be done readily with Dorkings or Brahmas that are kept tame and used quietly. The house was whitewashed twice through the season, and

on the whole was all that could be desired. The roosting-house had ventilators cut at the upper part, and by not allowing any nests to be made on the ground, skunks and other vermin were not encouraged, and committed no depredations. The size of these buildings may be changed to suit the needs of a flock of any



PORTABLE FEED-BOX.

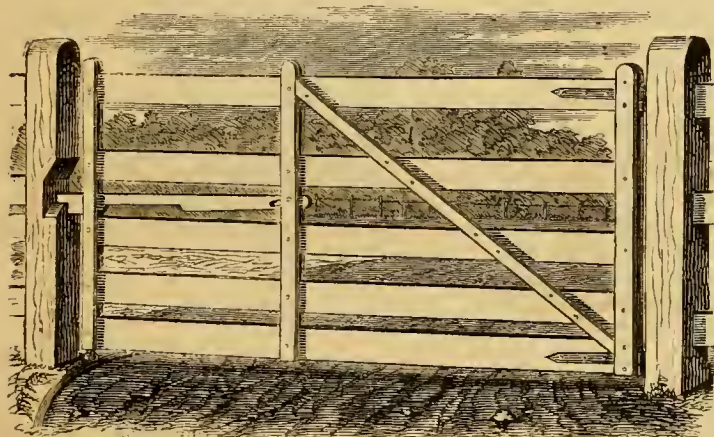
smaller number, or another set of buildings might be added if the flock should be increased.

A Portable Feed-Box.

J. A. Flory, Cass Co., Ind., sends us a sketch of a feed-box which he uses when at work in the fields, and which may be hung on to a board fence. It consists, as shown in the accompanying engraving, of a box of any desired size, to which side-pieces are fastened which project in front for a few inches, and which are notched to fit the fence-boards on which it may be hung. Between these side-pieces there is a shelf or sloping bench nailed, which serves to enable the feed or grain to be poured into the box from the other side of the fence to that on which it may be hung, if it is ever needed to do so. It is very probable that many of our readers will be grateful to our young correspondent for this hint, from which they may make for themselves a very useful and handy feed-box. With such a one there will be no need to feed oats to a horse on the ground, as we have seen done occasionally, or in a loose pail, which is upset and possibly trampled on and spoiled.

An Improved Farm Gate.

"A Correspondent" sends us his method of making gates, which is an improvement in



A GOOD FARM GATE.

several respects over those in common use. The posts are set in the usual manner, but a round log is laid between them just beneath the surface of the ground, which prevents dogs or hogs from the road forcing a passage by scratching or rooting the earth away. The

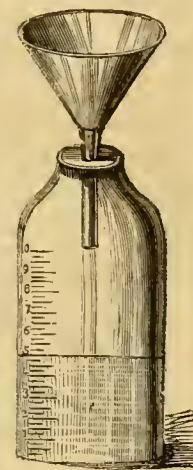
latch-post is notched, and the catch is sunk within the notch, so that there is nothing to project to interfere with passing cattle, horses, or carriages, or to be interfered with by them. The gate is made of strips of three-quarter-inch or inch boards, and is very light. The upright pieces are nailed on each side of the bars with wrought nails, or bolted with light carriage bolts; the diagonal brace is also fastened in the same manner. The latch is made with a sloping slot, so that when it is pushed back it is raised, and when released falls of its own weight into its usual position. It may be made either to rise and fall into the catch or to slip back and forth into it. A small roller is fitted to the lower part of the foot of the gate which, as the gate swings shut, strikes a half-circular piece of board fastened on to the surface of the ground, on which it revolves, and thus supports the weight of the gate. The gate therefore can not sag in the least; and if the heel-post leans slightly forward, or the upper hinge is slightly longer than the lower one, the gate swings to of itself. Such a gate as this should receive two coats of crude petroleum, which, if it is made of dressed chestnut or pine lumber, gives it a dark surface in which the grain appears very distinctly. We give an engraving of this gate as it appears when complete.

How to Make a Rain-Gauge.

"S. P.," Medina Co., Texas, wishes to know how to make a rain-gauge. A rain-gauge is used to mark the amount of rain-fall. It is, therefore, only necessary to procure a proper receptacle to receive the rain, and another in which the rain gathered may be measured and preserved from loss by evaporation. The annexed engraving shows how one of a very simple character may be made. It consists of a glass jar with parallel sides and of a regular cylindrical form. A cork is cemented closely into the neck, and the side of the jar is marked with a file, so as to show inches, halves, quarters, or, preferably, inches and tenths of inches when possible to do so. A porcelain or metal funnel, the inner edge of which is exactly the same circumference as the inside of the jar, is fitted into the cork, and the joint sealed with cement so as to be air-tight. Although this gauge will not be exactly accurate, it will be so nearly correct that it will serve the purposes of an ordinary observer, and its construction and use will be found of interest to many of our readers, more especially to young ones of an inquiring disposition, who may learn by its use a habit of observing closely those things which are occurring hourly around them, but which are now often passed unnoticed. Nothing is more interesting than the study of the

natural sciences, and the means and appliances for much of this study are, like this simple contrivance, readily procured and easily used. One thing, for instance, learned in a very short time by the use of such a rain-gauge and by observing the rain-fall, will be that the idea that drops

of rain falling directly downwards are nearer together than when they fall in a sloping direction, forced into such direction by a strong breeze, is incorrect. On the contrary, it will be found that exactly as many drops will fall into the funnel when the rain falls in a slanting direction as when it falls directly downwards. The explanation of this fact, which to some seems improbable, we leave to our young readers to study out. The position of the rain-gauge should be such that the rain-fall is not interfered with by sheltering trees or eddies or irregular currents of wind. A clear, open space should be chosen, and the jar should be inclosed in a wooden box, leaving the funnel projecting above the cover.



RAIN-GAUGE.

Board Buildings.

The weight of material put into such farm buildings as stables, sheep-sheds, hog-pens, poultry houses, wagon sheds, or tool houses, is generally very much greater than necessary. Now that lumber is becoming more costly, and it is found that light, board buildings are equally serviceable as heavy-framed timber ones, the principle of balloon frames for farm buildings is becoming more commonly adopted, and they are becoming continually lighter. A few years ago the writer built a stable for cows and calves in which there was not a piece of timber thicker than one inch above the floors, excepting the stalls and stanchions. The sills were 8x10 the joists 2x10 the floors 2 inches thick, and the rest was all of inch or half-inch boards. The roof was of half-inch spruce boards eight inches wide, with the joints broken by four-inch strips

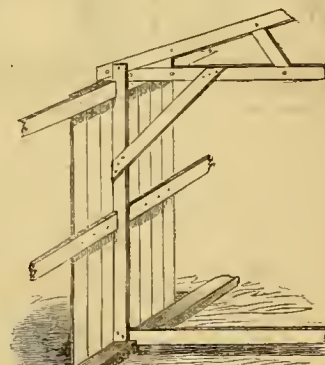


Fig. 1—A FRAME OF BOARDS.

of the same thickness. The roof was supported by trusses made of strips six inches wide put together as shown in figure 1, and were much lighter and easier to handle and put up than ordinary rafters, and having no tendency to spread, enabled the building below to be made very much lighter than would otherwise have been necessary. A board six inches wide (fig. 2) was nailed to the floor joist, and to that part of the end of the roof truss which came within the walls. This board was gained in order to receive strips which were used as girts, and the wall boards were nailed to these girts and to the first mentioned board, which stood at right angles to them. This stiffened

the building, and when the braces were put in it was as solid as a balloon frame, and was not any more shaken by a heavy wind than such a frame building. The roof was nine feet above ground with a pitch of four feet in eighteen. The building was sixteen by twenty-four, and for such a size or for much larger ones that may have cross partitions in them, this plan will be found very suitable. One man is able to do all the work alone, and handle any part of the material without help. The trusses are strong enough to hold a flooring over-head, but are not able to hold any great weight of hay or fod-

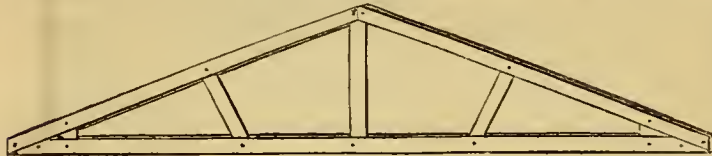


Fig. 2.—ROOF-TRUSS OF BOARDS.

der unless strengthened from below by partitions or stanchions. For the purposes indicated in this article, this method will be found useful wherever wooden buildings are used. But this method of making the roof truss, figure 1, is equally well adapted to heavier buildings, and when heavy timbers or scantling are used. With a truss roof there is no possibility of its spreading, and the same strength is gained with lighter timber as when much heavier is used.

Horizontal Wells.

A horizontal well is one dug into a hill-side in a direction very nearly level, so as to cut a spring of water and bring the flow out at the surface of the ground. In the engraving (fig. 3) the position of the well as to the surrounding ground is shown. It is readily seen that if a spring of water exists at the end of the well it may be reached just as readily by horizontal

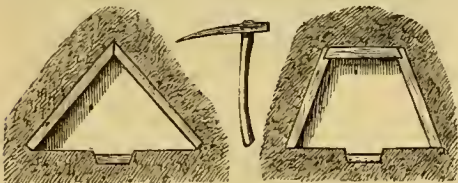


Fig. 1.—CROSS SECTIONS AND PICK. Fig. 2.

digging from the hill-side as by a vertical well sunk from the top of the hill. The water then flows from the well of itself, and no pumping is needed. The digging of one of these wells is cheaper than that of an ordinary well, inasmuch as no hoisting of earth is required, and it is done much more quickly. In use it is cheaper also, as once the spring is cut, the water flows of itself, and no pumping is required. The digging requires no more precaution than that of any other well.

The proper mode of proceeding is as follows:

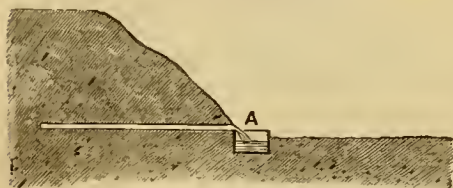


Fig. 3.—LONGITUDINAL SECTION.

When the spot is chosen, which should be done with reference to the convenience of location, as well as to the probability of procuring water, an opening is made as small as is possible for convenient working. The workman should be provided with leather pads over his knees, and

work in a kneeling position. A short pick is used, such as is shown at figure 1, the handle of which is about 16 or 18 inches long, and the pick itself about 10 inches, to enable it to be used in a confined space. The earth is gathered into a small box mounted on sled-runners, and is drawn out by means of a rope by a boy at the mouth, and when empty is drawn back again by the man inside. As the earth is picked away sufficiently to put the cribbing in place, that is put up. The cribbing is of plank—hemlock is the best—two inches thick and six or eight inches wide. The shape of the well may

be triangular, as in figure 1, or flat on the top, as in figure 2. The ends are fitted together as shown in the engraving; and as the planks are put in they are

wedged tightly in place by wooden wedges or stones. This should be carefully done, as on it depends the permanence of the work. When the well is finished, a tight water-trough is laid in the bottom, with no more slope than is needed to cause the water to flow. This trough empties itself into a tank at the mouth of the well, and the overflow should be carried away by means of a drain and not be allowed to collect into a pool or quagmire; unless, indeed, it be utilized by collecting it into a tight-bottomed pool for use in dry seasons if the well should then fail. This kind of wells furnishes one method of procuring water for stock of which many might serviceably avail themselves.

Raising Pigs in the Eastern States.

A correspondent at Williamstown, Mass., writes: "Ever since a boy I have intended to go into pork-making as a business. All to whom I mentioned my purpose seemed to pity me; they think it is about the last thing a farmer can hope to prosper in. And now, after thinking the matter over for ten years or more, I feel like seeking yet more light and a broader and more intelligent discussion of the subject, before I embark in it. The question is, Can farmers make pork for a living here at the East, and hope to succeed as well as in other directions with similar appliances of brains, soil, and money? Of course I do not expect to fatten hogs here in Massachusetts as they do in Illinois or Missouri. My individual plan of feeding would be something as follows: Have the pigs come in March and sell them when 9 months old. Through the summer feed on green clover, cut and fed in troughs, mixed with corn-meal or fine feed or bran; and through the fall feed on mangels, top and root, crushed fine, and mixed with meal and wheat feeds in increased quantity. I have fed nothing to pigs that seemed to afford such satisfactory results, so far as the growth of the animal was concerned, as mangels. I wish you would give us your views on the matter in the *American Agriculturist*."

The subject is not one which can be fully discussed in a single article. But it may be said that it is rarely wise to embark largely in any new undertaking; and furthermore it is seldom desirable to keep only one kind of stock, and this is particularly true of pigs. A certain number can be kept very profitably on the food left by other animals, and on the waste of the farm, farm-yard, stables, dairy, house, etc.

Whether it will pay to "make pork" on

food raised or bought on purpose for the pigs, depends very much on what you can get for the pork. If we could get 10 cents a lb. for choice fresh pork, as a minimum price, and from that up to 15 cents, or an average of 12½ cents per lb., there would be a reasonable prospect of getting a liberal compensation for our time and labor. We believe the time is not far distant when such prices will be readily obtained for choice fresh pork. At present, such pigs as we refer to are almost unknown in many markets. A small-boned, well-fattened, 4-months-old pig, of choice flavor, that will dress 45 to 60 lbs., is what is wanted—or at least would be wanted as soon as it was known. Even now, the miserable, large-boned, coarse, lean pigs that can be used to cut up for fresh pork, are in great demand, and sell at higher prices than large well-fattened hogs.

We like our correspondent's suggestion in regard to feeding green clover, run through a cutting-box, and fed in troughs mixed with meal, and we can bear testimony to the value of mangels. Still this plan of feeding will not enable us to raise and fatten pigs at present prices. When corn is worth only from 10 to 20 cents a bushel in the West, we can not hope to compete with Western farmers in fattening hogs designed for the pork-barrel, or for curing into hams and bacon. Our aim must be to raise pigs for fresh pork. If, as we believe, the price will advance to what this choice article is really worth, then we think our correspondent has a reasonable prospect of making money in breeding and fattening young pigs in the manner he proposes. And by so doing he would certainly add very materially to the fertility of the farm.

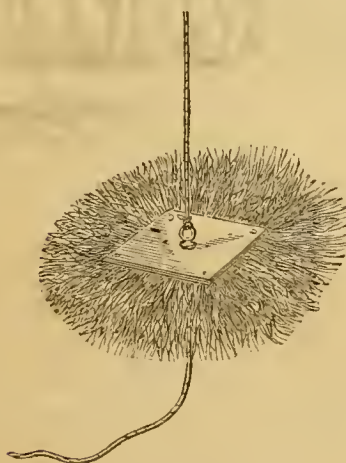
A Close Time for the Buffalo.

As the railroads penetrate into their country, the destruction of buffaloes becomes more wanton and wasteful every year. When the Kansas Pacific Railroad first went through to Denver it was thronged with herds numbering thousands of these animals, and the cars were sometimes compelled to stop to allow them to pass. Not less than a hundred thousand annually are killed on the line of this road. The Atchison, Topeka, and Santa Fé road penetrates the region further South, where buffaloes are found in immense herds during the winter. Dodge City, on this road, has been the principal point of shipment for hides and meat in Kansas the present season. The town is only about four months old, and derives nearly all its importance from this traffic. The road reached Dodge City September 23d, 1872, and from that time to the close of the year 43,029 buffalo hides were shipped and 71 car-loads of meat, amounting to 1,436,290 lbs. The buffaloes that are killed in wanton sport or for the supply of the wants of the settlers are not taken into this account. It is estimated that at least a hundred thousand of these animals will be slaughtered and shipped at this station the present season. And this is only one of the points where this destruction is going on. It is easy to see that the race can not long survive this indiscriminate slaughter, vast as is the region in which it pastures, and hardy and prolific as it is. If there are one million of buffaloes left upon the continent, their annual increase is only about 250,000, if we allow the same rate of increase as prevails among Texas cattle. The present rate of destruction is probably not less than 400,000 annually. However this estimate may be, there can be no doubt that we are every year making large inroads upon our stock of buffalo, and

within the present generation they will become so far reduced in numbers as to cease to be available for food to our pioneer settlers. This would be a national calamity. Now the frontiersman is mainly subsisted by the food which this animal furnishes, until he can get his quarter section under cultivation and begin to raise domestic cattle. It must put new obstacles in the way of the settler to have the buffalo exterminated. Congress has the power to stop this wholesale slaughter, and to give the buffalo some protection against its enemies. The animal is of most value in the winter, when the fur is in best condition, and the weather favors the transportation of the meat. The rest of the year, say seven months from the first of March, should be a close season in which no buffalo should be killed, and no fresh hides or meat allowed in the market. The penalties should be so heavy as to effectually break up the traffic. As the business is all carried on over a few railroads and the most of the buffaloes are slaughtered in the immediate vicinity of forts, it would not be a difficult thing for the Government to regulate this slaughter and to preserve the race until the great pasture grounds over which they roam are wanted for settlement. The cows drop their calves in spring and suckle them through the summer. It is essential to the preservation of the race that they should be left undisturbed by the hunter during this season. Our clubs for the preservation of game, our agricultural societies and papers, should press this matter upon the attention of Congress until the needed legislation is secured.

Sweeping Chimneys.

"J. B.," Onondaga Co., N. Y., asks how to get rid of soot in his chimney, where it accumulates and takes fire, endangering his buildings. As this is a very common trouble amongst farmers, who rarely sweep their chimneys and run serious risks of fire in consequence, we give an illustration of a very simple contrivance for removing the soot. Two pieces of board six inches square are provided. Holes are bored



A CHIMNEY SWEEPER.

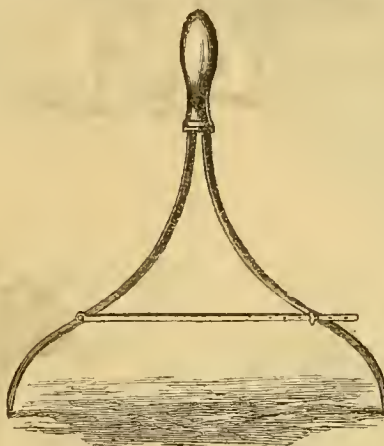
in the center, or screw-eyes are fitted, to which cords as long as the chimney are fastened. Holes are bored at each corner, to which common 2½-inch carriage-bolts are fitted. Birch or hemlock is placed between the boards, so as to form a sort of broom, and the nuts of the bolts are screwed tight. One person mounts the roof, and lets the end of one cord down to another person who stands at the bottom, and the brush is drawn up and down until the flue is cleared. A blanket should be hung over the fireplace if

there is one, or a cloth over the hole in the flue if a stove-pipe is used. If the flue is crooked, a round stone fastened to the end of the cord will carry it down.

The soot is a very valuable fertilizer, more so than ashes, and is useful to protect young cabbage plants or turnips against the black flea, and on account of its pungent odor and taste is very obnoxious to many of the insect pests.

A Land Measurer.

An instrument for measuring land or laying out certain spaces in a field is shown on this



A LAND MEASURER.

page. It consists of a handle of wood of such a size as may be conveniently taken in one hand, into the bottom of which are affixed two curved bars of heavy wire or light iron rod. A cross bar is loosely riveted to the lower part of one of the curved bars, and holes are punched into the other end of it of the same size as a hole punched through the second curved bar. A small thumb screw or spring key passing through the holes keeps the curved bars or legs of the instrument stretched apart at the required distance. If it is required to measure a certain number of rods along a fence, the legs are set 4 feet and one and a half inches apart. Four of these spaces equal one rod. The instrument taken in the right hand is turned around as the person walks along in a straight line, and as the points of the legs touch the ground each one marks off a quarter of a rod. If drills or hills are wanted, the legs are set at whatever distance apart they are required, and the spaces may be set off as quickly as a person can walk.

ANOTHER HORSE DISEASE.—From what we hear of the progress of another Canadian horse disease now very prevalent in Toronto, it would seem probable that we are to have another epizootic appear amongst our animals from that quarter. While the catarrhal fever which originated in that city last year is now passing out of our territory on the south into Mexico, a much more severe complaint, a deadly typhoid fever is beginning to cause apprehension across the water, and if it should prevail there, it would most likely sweep southward through the United States. Forewarned is forearmed, and as we have learned to dread these Canadian visitations it would only be wise to be prepared for them when they come. Our neighbors are not to blame for what springs from not very well understood causes, but we know that much may be done in the way of preparation and prevention. Our stock must be well looked after and kept in robust health, great attention

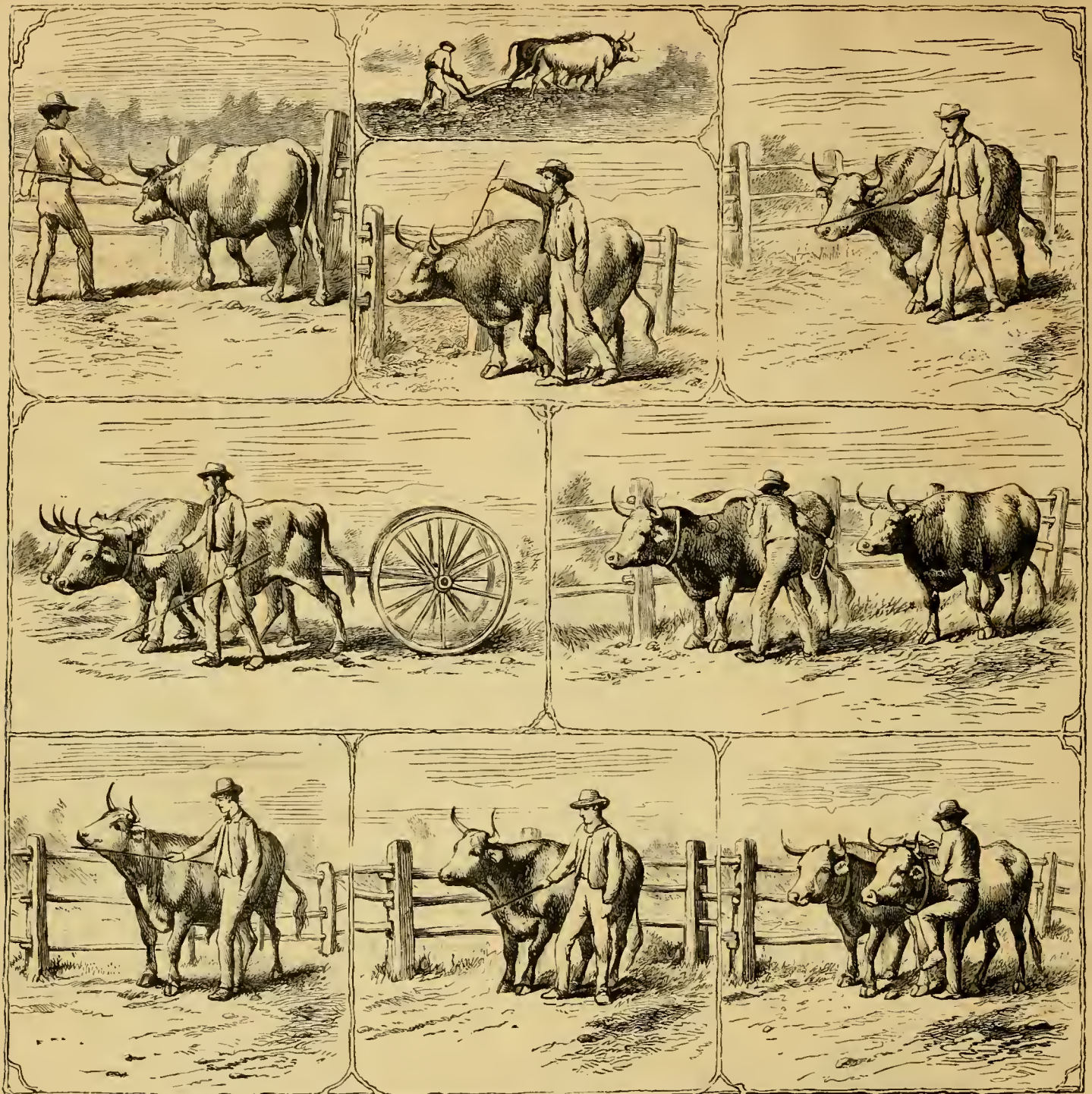
must be paid to cleanliness, and taking all possible precautions we can then meet all possibilities with equanimity.

Training Steers.

The future conduct of a yoke of oxen very much depends on the training they receive. This should commence at an early period of their lives, at least during their second year if possible. It should be commenced gradually; one lesson being taught at a time, and that well learned before the next is undertaken. Afterwards, at every lesson, those previously taught should be gone through, that it may be kept fresh and not be forgotten. Great gentleness should be exercised; the steers should never be frightened, worried, or wearied; the lessons should be short, and in the teaching the greatest patience and firmness must be used. No command should be given and not enforced. The words of command should be sharply and distinctly pronounced, but in a low voice, and never with shouting or bawling. When any command is promptly obeyed, the animal should be encouraged by patting the neck, by a few gentle words which are soon understood, and by a reward, in the shape of a nubbin of corn, a piece of apple, a little sugar or salt, or a piece of bread and molasses.

The first lesson is to stop when "Whoa!" is said. To teach this, the steer (only one) should be driven alongside of a fence or barn wall up to another fence or wall or a wagon placed purposely, and when he reaches the impediment, the word, "Whoa!" should be spoken sharply but quietly. Of course, he must stop. This should be repeated until the word and action are fixed on the memory. He should then be taught to stop before the obstacle is reached, until he will stop at the word anywhere and everywhere. The second lesson is to Haw! or Come around! To teach this, he should be touched on the off shoulder or on the off side of the neck with the end of the whip, and this should be continued until he will come around the driver in a circle by the mere motion of the whip and the voice. The next lesson is to Gee! The driver should step in advance of the steer on the nigh side, and hold the whip at an acute angle with his nose, lightly touching him at the same time, and using the word "Gee." When the steer will gee round at the word while the driver stands behind him, and without being touched with the whip, and moved by the voice only until he faces the driver, this lesson is learned.

The next is to hold up the head. The butt of the whip should be pressed lightly beneath the chin, and the words "Hold up your head!" spoken distinctly. If the steer is slow in learning this, a smart tap beneath the chin, with the words spoken at the same time, will teach him what is wanted. Before this lesson is learned, he must be made to hold up his head as high as possible by the use of the words only. To Back is then to be learned. The steer must hold up his head, and then by a touch on the brisket, and the words, "Back! whoa-a-a-back!" he must be exercised until the word of command is sufficient without the touch of the whip. After these exercises are well taught to each singly, the steers should be exercised together a few times, and then yoked up. The yoke should be a light one, made for this express purpose. To yoke them up is the next lesson. The off steer is tied to a fence or wall, and the yoke fastened on to him. The nigh end of the yoke should then be held up with the left hand.



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ILLUSTRATIONS OF THE METHODS OF TRAINING STEERS.—*Drawn by E. Forbes for the American Agriculturist.*

and the bow and bow-pin taken in the right hand. The steer, having been previously driven up to his mate, is then made to step up under the yoke, the words "Come under!" being spoken at the same moment that he is touched on the flank with a light switch or whip held in the hand along with the bow. When he is in place, the bow is put into the yoke, and held up with the left knee while it is secured with the bow-pin. The off steer is then untied, and the pair are left to stand in the yoke and move about for an hour or two, or while they are fed, after which they may be unyoked. They should never be left alone in the yoke until well used to it, lest they may get frightened, or learn to turn the yoke, a trick once learned they never forget or neglect to play when they can. After one or two yokings, they should be driven around the yard, and then, a short rope having been tied

to the high steer's horns, they may be taken out to a field or on to the road, but for a very short distance at first. They should never be allowed to run away; if they do it once, they should be driven back to the place from whence they started, and he made to stay there a short time, and then be driven slowly home. This should be done without fail, whether it be noon or night, or they will learn to start off home when unhitched and when they are not wanted to, at whatever work they may be, or if they are at work a long distance from home; and much time be lost in consequence. They must be taught not to do anything until told to do it, and to do what they are told promptly. When they are perfect, they may be hitched on to a light ox-cart, or the front wheels of a wagon, the off ox being taught to step over the tongue, the words "Step over!" being spoken as he

comes up to it, so that he may learn to step over anything else as may be needed at any time. The first few lessons with the cart or wagon should be long enough to tire the steers considerably, so that in coming home they will go steadily. In teaching them to back a wagon, they should be made to keep their heads up, and not allowed to hold them down, nor to stand out from the tongue. It is by being allowed to hold their heads down, and to stand out from the tongue in backing, that they learn to turn the yoke, which they will do when working with a chain, as in plowing or logging, and which when done not only makes it necessary to unyoke and reyoke them, but makes all concerned look and feel very ridiculous. The engraving given above represents the chief points of these lessons in such a manner as to make the directions very plain and easy to follow.

The Virginia Snakeroot.

In response to inquiries respecting native plants that have a commercial value, we last month gave a representation of Ginseng, and we now present one of the Virginia Snakeroot, a plant that furnishes a drug of considerable

used in medicine as a stimulant. The plant is found in rich woods in all but the northernmost portions of the country, but as a general thing only very sparingly. It is only along the Alleghanies, and in Ohio and some others of the Western States, that it occurs in sufficient abundance to be collected for sale. The collec-

from the branches of living or the trunks of dead trees. Besides the peculiar form of the flowers the stamens (reduced usually to one) are united with the pistil, and the pollen, instead of being of separate grains, is usually in little masses which require the agency of an insect to take them from the cells which inclose them



VIRGINIA SNAKEROOT.—(*Aristolochia Serpentaria*.)



SHOWY ORCHIS.—(*Orchis spectabilis*.)

importance. Being one among the hundred, more or less, plants that had a reputation among the aborigines as a cure for snake-bites, its popular name is derived from this. A related European species is called Birthwort, it having in early times been used in child-birth, and the botanical name, *Aristolochia*, refers to the same thing. Our Virginia Snakeroot is *Aristolochia Serpentaria*, the specific name perpetuating its snake-bite reputation. We have three native species of *Aristolochia*, one of which, *A. Siphon*, is a useful and popular climber, and is cultivated as the Dutchman's Pipe, a name given to it on account of the shape of its flowers. In all the species the flowers are of a singular structure, being usually a tube bent upon itself, and much dilated towards the mouth. Some of the exotic species cultivated in greenhouses are notably grotesque as to their flowers. In the Virginia Snakeroot, the stems are about a foot high, with leaves of the general shape of those in the engraving, although they vary considerably in width and as to the form of the base. The flowers are very inconspicuous, and borne near the ground; the tube of the corolla is curved somewhat like the letter S, and is of a brownish purple color. The stems spring from a short root-stock, which is abundantly furnished with slender roots. The root has a remarkably aromatic, camphorous odor, and is

tion of this or any other of our native medicinal plants does not offer any great inducements to those who have anything else to do. The wholesale price of Virginia Snakeroot in the New York market is about thirty-five cents per lb, and as it passes through several hands before it gets to market, it is probable that only a small portion of this is received by the collector.

Our Native Orchis.

Although we have among our wild plants a large number belonging to the Orchis Family we have only one Orchis proper. The flowers in all of the plants of this family are so unlike most other flowers in their structure that it is difficult to describe them without elaborate drawings. Three parts to each calyx and corolla are present, but one or more parts of one or both series is so unlike the others as to give the flower a most irregular appearance. As the flowers present many grotesque forms, and are frequently, especially the exotic ones, of much delicacy or brilliancy of color, they are great favorites among florists, and some of the rare species are the most costly of all flowers. Our Northern species are all terrestrial, that is, growing with their roots in the ground like other plants, while the tropical ones often grow

and bring them in contact with the stigma. The species figured, the Showy Orchis, *Orchis spectabilis* grows to about twice the size of the engraving, and is found in the Northern States in rich woods and damp places. Its two broad leaves are thick and shining, the upper portion of the flower is pink or purplish, and the lower petal or lip white. Like others of the family we have found this a very uncertain plant, it occurring in considerable numbers in a locality where the next year it is difficult to find a single specimen. The name Orchis is an ancient one applied by the Greeks to a similar plant.

Packing and Marketing Produce.

BY J. R. HELFRICH.

In the article upon marketing strawberries given last month there are hints which will apply to the fruit here treated of.

RASPBERRIES.

Use the same care in picking, packing, and shipping, as advised for strawberries. The berries should be perfectly dry when picked, otherwise they will mold; see that there are no soft or overripe berries put in, and that the cans or baskets are well filled so that they will be full when they arrive in market. For Blackcaps use round-top pint cups only—quarts are too

large, and the fruit in them will be mashed and injured in handling. For Antwerp and other Red varieties use cups holding *one third quart* only, as in any larger bulk the fruit will be sure to mash and be spoiled. They should be picked when the dew is off, and kept in the shade to thoroughly cool off before packing. Use ventilated crates and round top ventilated baskets or cups of the same style as for strawberries. Have each crate well marked on both ends, with a card containing the consignee's name in large showy letters; have also the shipper's name and station in full on both ends.

BLACKBERRIES.

Pick when the dew is off, and keep them in the shade to cool off before packing. Keep out all bruised and over-ripe berries, as one soft or mashed berry will soon ferment and spoil the whole crop. Use full pint or quart round-top cups that are well ventilated, also the ventilated crates, same as for strawberries. The 45 and 60 pint crates are the preferable sizes. If quarts are used 24 and 36 quart crates are most suitable; any larger or heavier package will be clumsy to handle, and liable to be injured in loading and unloading. Have each crate well carded on both ends as above directed.

WHORTLEBERRIES

Can be shipped in quart cups and berry crates, or in flat boxes holding one half bushel heaping measure. If shipped in flat boxes these should be made to hold a full half bushel. The proper dimensions are 4 inches deep, 13 inches wide, and 25 inches long (all inside measure), the ends $\frac{3}{4}$ inch thick, sides, top, and bottom of $\frac{3}{8}$ or $\frac{1}{2}$ inch thick of planed stuff—the whole neatly nailed together—except six inches wide on the top side across the width, which should be hinged to the box with leather and fastened by a screw. In filling the boxes they should be shaken and well filled so that there will be a full half bushel when they arrive in market. If the boxes are not well filled and shaken before starting the fruit will become loose and move in handling and is thereby apt to get mashed, which injures the sale very much. Mark with stencil on top "This side up," and never carry or haul them on the ends or sides, but always flat side down, otherwise they will come to market in bad condition. Have each crate or box marked as directed under raspberries.

CURRENTS

Must be picked when the dew is off and the fruit is dry. Handle carefully so as not to mash the fruit. Keep out all leaves. Do not let the fruit get over-ripe as it will not then bear transportation. If the market is near by, pack in flat boxes about five inches deep, holding about 25 lbs.; the lid should be hinged. Currants may also be sent in flat baskets holding about 20 pounds, covered with muslin. They must not be put in large bulk, as they are liable to get mashed and spoil. For cherry currants use flat baskets holding 15 to 20 pounds, or round-top quart cups such as are used for strawberries. Mark the gross, tare, and net weight, on the inside of each package; either with chalk or on a card that is tacked inside on the lid. Have each package well carded on both ends; if in baskets sew the cards on firmly to the cover.

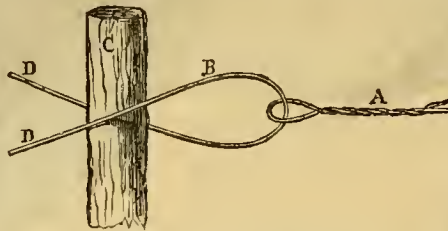
MAPLE AND ELM TREES.—From the complaints that come to us that the seeds of these forest trees can not be had at the seed stores, it is evident that many do not understand their manner of growth. The Elm, the Red or Soft

Maple, and the Silver Maple all perfect their seeds very early—not far from the first of June, and must be sown *the same season*. If kept for any great length of time after they fall they will not germinate at all, hence it is not practicable for the dealers to offer them. The sooner they are sown after they are ripe, the more certain they are to germinate.

A Simple Wire-Tightener.

BY J. SISLEY, LYONS, FRANCE.

A great many contrivances for tightening wires have been offered to the horticultural public. They are all more or less ingenious,



RAVET'S WIRE-TIGHTENER.

and answer the purpose required; but they are more or less expensive, and economy of time and money is the great desideratum in horticulture more than in any other pursuit. A gardener of our city, M. Ravet, has invented the most simple, most economical, and most effective mode of tightening wires. Upon the wire to be tightened he makes a ring, A, through which he passes another piece of wire, B, as in the figure, which passes around the post, C, to which the wire is to be fixed. With a pair of pincers he twists the two ends, D, of the piece of wire, B, until the wire, A, is sufficiently tightened. Nothing can be more simple, more easy, and more economical.

Vegetable Plants and Planting.

BY PETER HENDERSON.

One day about the middle of April the snow, not satisfied with its long acquaintance with us during the past winter, intruded itself again this spring, and covered our newly-planted gardens to the depth of several inches. Veteran tillers of the soil, as the most of us here are, could smile at this assault, knowing it to be harmless. But several of my correspondents, still young in the business, have written to me in great trepidation, thinking their planted crops were ruined.

A snow after planting in spring I have never known to injure plants of any kind, unless, indeed, it was heavy enough to break them. The fear of snow and of the slight frosts that come often prevents the setting of such plants as cabbage, lettuce, and even asparagus among vegetables, and of strawberries and other small fruits, until the season is so far advanced that hot weather comes on, starting the tops before the roots have had time to get a foothold. There is rarely danger that such hardy or half-hardy plants as we plant in spring will be injured by any frost that may come after. This opening up for spring work usually begins by the end of March here, and I have never yet seen plants injured by frost after that time.

To give an idea what amount of cold cabbage and lettuce plants will stand without injury, I will relate an experience I had in my early days of market-gardening. A particularly mild spell in the latter part of February had led us to believe that spring had come. Out went the teams,

and the ground was manured, plowed, and planted with cabbage and lettuce to the extent of two acres, which was all finished up by the 26th of February. It was my second year in the business. I was yet an inexperienced hand, and my neighbors predicted that my venture was a foolhardy one, and would result in total loss, no one before having ever planted such crops in this section at such an early season. But fortune favored me; the weather continued mild long enough to allow the plants to "strike root," and though the thermometer afterwards marked as low as 15° above zero, and the ground was frozen for full ten days so that it could not be again dug or plowed, yet the wild venture proved a success, and I had the satisfaction of having the first cabbage from that February planting that was sold in market. I never after had an opportunity of planting so early, and would not do it if I had, for it was simply favorable conditions that saved the crop. If the cold snap had set in immediately after planting, there is but little doubt the plants would have suffered injury. But the experience was valuable in showing what severity of frost such plants would stand without injury. Of course, much depends on the condition of the plants; if taken from the hot-bed or cold-frame without being previously exposed, they might be in condition to be as easily injured as a tomato plant.

The past season I had the sashes taken off my entire crop of cabbage and lettuce plants on March first, (having, however, had them well hardened beforehand by ventilating), and never covered them again. They were twice covered completely up with snow, and the thermometer several times marked only 20° above zero. Yet we hardly ever before had finer plants.

The sashes so taken off—nearly 1,000 in number—were used for our flower business, but, had we desired it, they might have been used on temporary frames, and grown a crop of lettuce which in 5 weeks from date of planting, March 1st, would have easily given \$3 per sash. I mention these facts to give confidence to the hundreds of your readers now engaged in market-gardening, who, from dread of exposing their plants in spring, not only do them an injury but lose the profit of a second use of their sashes. A third use of sashes may be had in growing tomato, sweet-potato, or egg-plants, after the crop of lettuce has been sold, or they may be used for forwarding an early crop of cucumbers or melons.

Notes from the Pines.

When one is doing the first week in May the work he usually does the first week in April, he finds matters crowding upon him at such a rate that he has little time to notice things, and still less in which to write about them. It is of no use to say that this is the most backward spring we ever knew, for those matter-of-fact people who keep records will come down with the figures and show that we have had several just such seasons within the past dozen years. Still no amount of figures or records can do away with the uncomfortable fact that we are all very much behindhand with our work. In looking about this spring I discovered to my dismay that a number of my dwarf apples and pears was infested with

HARRIS' BARK-LOUSE (*Aspidiotus Harrisii*).—This is a very different affair from the Oyster-shell Bark-louse, the scale being oval and of a pure white color, while the eggs beneath the scale give a red stain when crushed. The tree

looks as if sprinkled with small drops of white-wash. The scale is of a much thinner texture than the other and the insect less injurious. I dissolved a lot of the Carbolic Plant Protector Soap and added it to some whitewash that was at hand, putting in some lamp-black to modify the color, and had the trees painted with the mixture. The whitewash was used as it would adhere longer and not be washed off by the spring rains as the soap alone would be. Two years ago some stray cattle came in and among other mischief broke off a fine young White Pine at about half its height. I disliked to lose the tree so I made a

NEW LEADER by turning up one of the horizontal branches and tying it to a stake. The operation succeeded perfectly, and at a little distance one would not suppose that the tree had been mutilated. I had furnished spruces and firs with leaders in this manner but never before saw it done with a pine.

THE DWARF JUNE-BERRY is a shrub that ought to be better known. Almost every one knows the common June-berry or Shad-flower, a shrub or small tree conspicuous all over the country in April and May, with its racemes of white, long-petalled flowers. One dwarf specimen that I have had for five years is only 18 inches high, while others in better soil are between two and three feet. They flower so profusely each spring that they are completely clothed in a sheet of white. The fruit, which is about the size of a large huckleberry, is said to be pleasant, and in some parts of the West is grown for market. I speak guardedly about the fruit, for the birds keep such a close watch of it that I do not get a chance to taste it when fully ripe. The shrub increases with moderate rapidity by suckers, and, were it desirable to cultivate it for its fruit, it could no doubt be propagated more rapidly. But without regard to its fruit, I set a high value upon it as an ornamental shrub. Last spring I set out a plant of the variegated leaved and single flowered

JAPAN GLOBE FLOWER, (*Kerria Japonica*).—The double kind, sometimes called Corchorus, is a very common shrub, but the other I had never seen outside of a greenhouse. I supposed that it was, of course, tender, and last fall, as the plant had grown to be quite a large one, I took up a portion of it and put it in the cellar and left the rest to the mercies of the winter. This spring I found my supposed tender *Kerria* alive to the very tips of the smallest twigs, while the double one, usually accounted as hardy, had its stems killed back one half. I had a striking illustration of what a difference in the time of flowering is made by a slight

DIFFERENCE IN EXPOSURE.—A bed about ten feet across cut in the lawn was planted with tulips and hyacinths. In spading manure into this, fall and spring, it has become raised, so that when the surface was rounded off the center was some eight inches higher than the circumference. The same kinds of bulbs were planted all around, and while the hyacinths upon the south and east portion are in full bloom, those upon the north side are just opening, there being between one and two weeks' difference caused by this slight elevation.

GRAPE-VINES are injured even more than I first supposed. It is rather discouraging when one has his vineyard fairly established and expects to enjoy for the first time the full results of three or four years' careful training, to have to begin all over again. For the most part, the buds upon the arms are more or less injured,

and in many cases killed altogether. There is nothing to do but to grow new canes from near the root. It is hardly safe to set down anything as "perfectly hardy." I supposed if anything could be classed in that category it was the

JUDAS TREES, but I find that with our native species, *Cercis Canadensis*, and the dwarf, *Cercis Japonica*, the flower-buds are all killed. It will hardly seem like spring without the cheery little flowers of the Judas trees. Of course every peach-bud shared the same fate. If the excessive cold of winter did much damage, it appears to have done some good.

THE CABBAGE BUTTERFLY (*Pieris Rapae*) seems to have about disappeared. I am not sure that the cold destroyed the chrysalides, though, being a foreigner, this is not unlikely. It may have been that the recently-discovered parasite became sufficiently numerous to hold the insect in check. At all events, I have seen but one butterfly, and that a solitary male, while last year the air over the hyacinth bed was thick with them; they are very fond of doing their courting among the flower-beds preparatory to a descent upon the cabbage-patch to deposit eggs for a crop of caterpillars. Whatever may be the reason, they thus far do not appear, and "for this relief, much thanks."

The Fertilization of Yuccas by Insects.

The agency of insects in effecting the contact of pollen with the stigma, and thus fertilizing the flower, has been frequently mentioned and illustrated in these pages. While most perfect flowers—those that contain stamens and pistils in the same flower—would seem to be arranged in such a manner that the pistil would be fertilized by the pollen of the same flower, a close inspection shows that the arrangement is usually the reverse of this, and that to prevent the injurious effects of too close breeding, the flower is really so contrived that it is with difficulty fertilized by its own abundant pollen, but must wait until that from another flower, and often from another plant, is brought to it. Much pollen is carried about by winds; but very important agents in this matter are the insects, which in going from flower to flower for sweets and pollen carry the fertilizing dust upon their bodies. Ever since the publication of Darwin's remarkable work upon the "Fertilization of



Fig. 1.—STRUCTURE OF PRONUBA.

Orchids," naturalists have been observing this matter very closely, and a most charming popular account of the present state of our knowledge of the relations of insects to plants in this respect is given in Dr. Gray's "How Plants Behave," a work which we commend to both old and young.

In the *Agriculturist* for December last we

called attention to the interesting discovery, through the joint observations of Dr. George Engelmann and Prof. C. V. Riley, of St. Louis, Mo., that the common *Yucca filamentosa*—Adam's Needle, Bear's-grass, or Thready Yucca—was fruitful only when the pollen was placed in contact with the stigma by a small insect. In this case the fertilizing is not accomplished by an accidental transfer of pollen while the insect is searching food for itself, but is the result of careful preparation made by the insect for the welfare of its progeny. The insect,

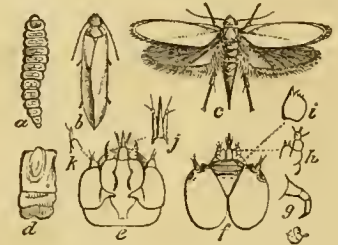


Fig. 2.—LARVA AND PERFECT INSECT, ETC.

which is a small moth, collects the pollen into a mass, and places it in contact with the stigma or sensitive part of the pistil, a place it would not reach without some such aid. It then lays its eggs in the pollen, and the young soon after they hatch penetrate the tender pistil, and feed upon a portion of the growing seeds. By the time the seeds are ripe the grub or larva has attained its full growth, and eats its way out through the walls of the seed-vessel, enters the earth, and there takes on the chrysalis state. The next season the insect comes out as a perfect moth, ready to provide for the continuation of the species in the same manner as its parent did. Of course, those seeds upon which the grub feeds are worthless, but as the seeds in each capsule are many, and the larvae few, only a small portion are thus injured. The insect here referred to had passed unnoticed until the observations of the gentlemen above-named; and at the meeting of the American Scientific Association, at Dubuque, last fall, Mr. Riley announced the facts of which we have given a brief synopsis, and stated that the insect which performed this interesting work was quite new to science, and that he had given to it the name of *Pronuba yuccasella*.

Mr. Riley, as our readers are aware, is the efficient State Entomologist of Missouri, and in his forthcoming fourth Report upon the injurious and other insects of that State, gives a detailed description of this new insect, with figures. Through his kindness we have the advance-sheets of the Report and copies of the engravings. As the technical description of the insect is much in detail, and can hardly interest the general reader, we omit it, referring the entomologists who would consult it to the Report itself.

Popularly, we may say that it is a small moth about half an inch in length, and with an expanse of wings of $\frac{9}{10}$ of an inch (figure 2, c). The front and hind wings are shown enlarged in *h* and *i*, figure 1. The front wings are silvery white, and the hinder ones semi-transparent and pale brownish. Head and thorax white, and the legs dingy yellow. One of the remarkable characters of this new genus is found in the maxillary palpi, which have in the female the nasal joint produced into a long "prehensile tentacle." The larva (figure 2, *a*) is about half an inch long, and white. The remaining figures show details of structure of the insect's head and other portions, which entomologists will

understand without descriptions, and which would scarcely be interesting to others.

Probably one reason why the insect has not been noticed before is that its color so closely resembles that of the Yucca flower that it may be readily overlooked. The insects appear to be most active at night, at which time, by the aid of a lantern, their operations may be watched.

With regard to the fruiting of the Yucca in Europe, Mr. Riley thinks the insect may have been carried over in the seeds, or that some related insect may perform the same office, a point which no doubt European observers will investigate. The principal observations in regard to this insect have been made upon the common *Yucca filamentosa* and *Y. angustifolia*. As there are several others in the South, and especially in the far West, it is hoped that some of our readers will take the trouble to watch them when in bloom, with a view to the action of insects, and report the result to Mr. Riley.

The Twin-flower—*Linnaea*.

Those at all familiar with plants are aware that many genera are named in honor of persons. This distinction should be bestowed exclusively upon those eminent in the science of botany; but, unfortunately, some botanists have had the bad taste to name genera after distinguished soldiers, politicians, and others who, however deserving they may be in other respects, have no claim to be botanically commemorated. Some of the most eminent botanists have had their names bestowed upon plants that in the general estimation are neither conspicuous nor beautiful. In the eye of the botanist, those qualities which make a flower popular are of secondary consideration. The name of Linnæus, the great master in Botany, is borne by a plant that, though humble in size, is one of great delicacy and beauty. It is a little creeping evergreen-vine, about twice as large as is represented in the engraving. It belongs to the Honeysuckle Family, and as each slender, upright stalk bears two flowers, it has received the common name of Twin-flower. The flowers are white, often tinged with pink or purple, delicately fragrant, and droop with a modest air that is very charming. It is found usually in moist woods, where it forms a dense carpet. It is an excellent plant for a shady rock-work, and when once established grows rapidly. In England, it is some-

times cultivated in pots of peaty earth. The plant was discovered by Linnæus in Lapland in 1732, and his friend Gronovius later gave it the name of the discoverer. In the well-known portrait of Linnæus he is represented in his



THE TWIN-FLOWER.—(*Linnaea borealis*.)

traveling suit with a cluster of the Twin-flower in his hand. The *Linnaea* is a peculiarly northern plant, as its specific name, *borealis*, would indicate; and is found in both continents. With us it is very common northward, and is found sparingly as far south as New Jersey and Maryland. Aside from its intrinsic beauty, the



THE SESSILE WAKE-ROBIN.

plant is a favorite with all who love wild flowers, and more especially with botanists, who very properly regard it with great interest and affection on account of the illustrious name it bears.

Wake-Robins—*Trilliums*.

The genus *Trillium* is a purely American one, with the exception of one species found in Japan, a country the flora of which bears a marked resemblance to that of our Atlantic States. There are about ten species, all of which are interesting, and some sufficiently showy to claim a place among the choice flowers of our borders. In December, 1871, we gave an engraving of *Trillium erectum*, which with the allied *T. grandiflorum* is gradually making its way into cultivation, and we now present an illustration of a quite distinct species, *T. sessile*. The *Trilliums*

would not at first sight be placed in the Lily Family, as their general appearance is so unlike that of the Lily; yet the structure of the flowers is such that recent botanists have thus classed it. The genus gets its name from the Latin for *triple*, the parts of the plant being in threes; we have three leaves upon the stem, three parts to each calyx and corolla, twice three stamens, and the parts of the pistil in threes. They all have a tuber-like root stock from which arise a few simple stems about a foot high, each bearing three broad leaves, and above these the flower, which is either elevated

above the leaves, upon a stem, or sessile close among them, as in the case of the one here figured. The flower, shown of the natural size, is a dark purple or maroon color, but the great beauty of the plant lies in the leaves, which are finely variegated or marbled with a very pale and a dark green, and when perfect equal in richness some of the choice exotic "foliage plants" of the greenhouses. This species is found from Pennsylvania and Wisconsin, southward; and in South Carolina and Florida there is a closely allied species, *T. discolor*, which has still

more strongly marked leaves, but otherwise very near this one. The *Trilliums* will grow in any good garden soil that will not become too dry in summer, and when they become well established, a process requiring a year or two, take care of themselves and unfold their flowers each spring. Those who can readily find these plants in their native localities will be amply repaid for the trouble of removing them to the garden. It is rarely that we see *Trilliums* offered by our florists, and one who wishes to purchase them, as well as many other American plants, will have to send to Europe for them. The species we have here enumerated are the showiest, but all are pleasing.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

How we Bake our Bread.

All civilized peoples use the flour of some kind of grain mixed with water, fermented, and baked

must go to some of the country towns of New England or to the wooded parts of the West, where the open wood-fire has not been replaced by the stove. Here we have a primitive but most useful utensil, variously known as bake-pan, bake-kettle, or skillet, which is the *braisier* of the French. It is a shallow iron kettle upon legs, with a cover which has a turned-up rim around it. This, containing the bread, is placed over live coals

Home Topics.

BY FAITH ROCHESTER.

REWARDS AND PUNISHMENTS.—It would be far too much to expect average children to do right simply for the sake of well-doing. Their best endeavors are generally prompted by the hope (often unconscious) of some reward. The wise parent

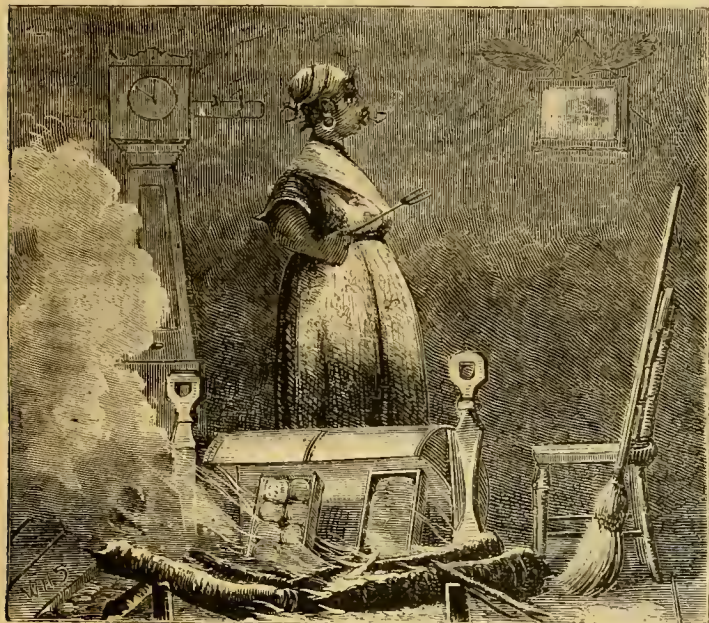


Fig. 1.—BAKING BEFORE THE FIRE.



Fig. 2.—BAKING IN A BAKE-KETTLE.

into bread. It is only the savage that plants a tree and grows his bread in the form of bread-fruit. A history of bread from the earliest times and in all countries would be a most interesting one. In our country, we understand by bread, when mentioned without any qualifying word, the flour of wheat made light by yeast or leaven, and baked.

There are localities where abominations made with soda and saleratus are made to do service instead of bread; but as intelligence and a better knowledge of the laws of health make their way, these unsavory, unsightly, and malodorous compounds disappear. The introduction of ranges and stoves have made the baking for the most part pretty much the same thing all over the country. Still, there are some places where stoves are not known, and where the primitive modes of our ancestors are still followed. One of our artists, some months ago, made an extended sketching tour, and among other things his pencil jotted down were several domestic scenes which illustrated what seemed to him odd ways of baking. Our Household Department is so limited as to space, that we seldom find room for pictures other than the simplest illustrations; so, by the way of variety, we give engravings from three of the sketches referred to, as they may have the interest of novelty to at least some of our younger housekeepers. The sketch for figure 1 was taken in one of the southernmost States, where the bread is baked before the fire by the aid of a tin reflector. To see a kitchen scene like that in figure 2 one

drawn out upon the hearth, more live coals are placed upon the lid, and in skillful hands the baking, not only of bread, but of other things, is done to perfection. Figure 3 gives the detached oven that is a more common adjunct to the farm-house in the Middle States than elsewhere. A large stone, brick, or in some places even clay oven is

gives this reward—just a smile of pleasure, or a kiss, or a cordial "thank you"—when well-doing takes the form of a personal favor. "That is right, dear," is easily said when a child has made an effort to do well, and it helps the little one a great deal.

"A child ought not to be praised for simply doing right," says one.

Then do not blame it for doing wrong. But praise is not what we are talking about, if by praise you mean anything like flattery. We only call things by their right names if we say "that is right" when a deed is right; and there is no flattery in letting a child see that we are pleased with it when it has merited our pleasure. All this is simple encouragement, and the world would get on poorly without it. We grown-up people can not thrive without encouragement of some kind. Most of us are toiling for rewards—one for fame, one for wealth, one for social position, one for the love of his fellows—each according to our taste. Or, if deprived of hope, we are perhaps whipped to our tasks by fear of punishment, fear of disgrace, fear of poverty, fear of social ostracism, fear of alienating our friends. Duty is the sole mistress of some, but she also governs by hope and fear, high or low, according to the degree of



Fig. 3.—THE DETACHED OVEN.

put up handy to the kitchen, and is capacious enough to hold the week's baking. The heating of the oven, the sweeping out of the coals, the putting in of the bread, pies, cake, and other matters, and the "drawing" at the proper time, call for a skill that can only be acquired by long practice.

culture, through the conscience. The very few who seem to do what is right spontaneously are rare among our growing boys and girls, and we must expect to bring them to their daily tasks by some motive stimulated.

It is not well to offer children cash payment very

freely, mercenary motives are so easily cultivated. Indeed, *promises* of all kinds should be avoided as much as possible, especially evil promises or threats. Perhaps I can explain myself best by an illustration.

A mother thought it was time to teach her little boy of six to wipe dishes. She told him he might help her by wiping the dishes if he would like to, and the *honor* delighted him very much. His hands were carefully washed, and an apron was tied around his neck. Then the dishes, washed and rinsed in hot water, were turned to drain in a pan, and the boy set to work with his cloth. He was so proud he had to carry each dish where some one could see him wipe it. For a day or two he was very slow about the work, but very thorough in his wiping. Hurrying him seemed to avail little, and was likely to discourage him; so the mother proposed to see which would get through with their part first, she with washing all of the dishes, pans, kettles, etc., and scouring the knives, and he with just wiping the crockery and spoons and forks; and after a few times trying the mother could hardly get a chance to "beat." This was lively and happy work. Soon a younger child wanted the honor of wiping the spoons and forks, and all the wiping part was left until the washing was done. Then each child, after performing its ablutions, had its pan, one with the crockery and knives and brighter part of the tin-ware, the other with forks and spoons. But the chatter-boxes learned to dawdle over their work. They liked the business, but carried a good deal of play along with it. There was no particular hurry about the work, but the habit was a bad one. So the mother said that if they finished their tasks in ten minutes she would give each of them a card with a picture of an animal on it after the dinner dishes were wiped—this as a reward for promptness with both breakfast and dinner dishes. They did the work easily in from five to seven minutes, and then the limit was fixed at eight minutes. When the cards were all gone, a still better reward for quick work was devised. The globe was brought out as soon as the dinner dishes were *promptly* wiped, and a chapter in "Lucy's Wonderful Globe" was read to the little ones. After the book was read through, the globe alone was sufficient reward. Some time I must tell of the rapid progress made in geography during those half-hours with the globe.

The children were not paid for doing the work. They loved to do that just "to help mamma." But the temptation to chatter and play and neglect the work was so strong that some inducement seemed necessary to make them work fast.

Whatever I might have said about punishments must now go unsaid. I was happily interrupted in my writing by the arrival of a new book. Its very first chapter is about "Corporal Punishment," and from it I will quote:

"If it were possible in any way to get a statistical summing-up and a tangible presentation of the amount of physical pain inflicted by parents on children under the age of twelve years, the most callous-hearted would be surprised and shocked. If it were possible to add to this estimate an accurate and scientific demonstration of the extent to which such pain, by weakening the nervous system and exhausting its capacity to resist disease, diminishes children's chances for life, the world would stand aghast. . . . How many a loving mother will, without any thought of cruelty, inflict half-a-dozen quick blows upon the little hand of her child, when she could no more take a pin and make the same number of thrusts into the tender flesh than she could bind her baby on the rack. Yet the pin-thrusts would hurt far less, and would probably make a deeper impression on the child's mind."

The author of this best of home books does not simply condemn the old and barbarous methods of "discipline." She points out clearly a decidedly better way in many an excellent chapter; and she is able to say, "I know, for I have seen," and "I am sure, for I have tested it." There is not room here to quote further; but let every parent who sincerely desires to walk humbly, and deal justly,

and love mercy as a parent, get this little book and ponder it well. It is called

"BITS OF TALK ABOUT HOME MATTERS, BY H. H."—This is indeed, according to my belief, the best of all home books yet written. It is the book which a mother should keep in constant sight so long as she has the care of young children. Let the recipe books go, and all the books about decorating our houses and persons if they must. We can eat simple baked potatoes and gems and apples if necessary, and live on bare floors, clad in calico, if need be, but henceforth we *must* give time, and thought, and companionship, and love unbounded to the little children whose plastic souls have been intrusted to our guardianship.

Many tears will fall upon the pages of "Bits of Talk," for it has come too late for many an honest-hearted but sadly-mistaken parent. If we could only have been brought up on such doctrine! I, for one, am glad that this book "about Home Matters" is not at all about mere housekeeping.

SPRING VEGETABLES.—Parsnips and salsify will, with most persons, be gone when this paper is printed. Asparagus, too, will almost have had its day. I have seen it very poorly cooked on very elegant tables—boiled in long stalks, half of which were white and tough. It is much the best way, it seems to me, to cut it in small pieces, cooking only the tender part, and pour boiling water over it, and boil it half an hour, adding a little cream and salt when it is done, and letting all boil up together once. Pour it over nice toast if you like.

GREEN PEAS will soon be here. Cook them as soon after picking as possible. Marion Harland says "shell and lay them in cold water until they are ready for cooking." I say never wet them until you cook them if you can avoid it. To secure this, shell them as clean as possible. Pour boiling water over them, and boil half an hour, or a little less if they are very tender. Do not salt them until they are soft, and then but lightly, their own flavor is so delicious. Add a little cream or milk if you have it, but never add any butter except the very best, and not that if you have cream.

PIE-PLANT PIES.—These are very delicious if well made. But I can tell you that if a memory of your mother's (or my mother's) excellent pie-plant pies drives you to purchase one in a city bakery, you will probably be sadly disappointed. They stew their pie-plant before making the pies, and that spoils them. Our mother never did so. She peeled her stems of rhubarb, and then sliced them in half-inch lengths, holding several stems in her hand at one time. With these she filled her pie, sweetened it generously—about the same as for a lemon-pie, a small teaspoonful of sugar for a medium-sized pie—moistened it with a great spoonful of water, dusted over this a little dry flour (to thicken the juice a little), covered it with the upper crust, and baked it slowly and thoroughly. Such a pie is too rich for some stomachs, and there is a way of dispensing with a part of the sugar without having the pie too sour. Not by the use of soda! No, indeed! But you can pour boiling water over your sliced rhubarb, letting it stand ten or fifteen minutes. Pour this off, and make your pies of the rhubarb with less sugar.

If you stew pie-plant for sauce, you can pour off a part of the juice before it is done (using it to make jelly if you like), and supply its place with more water, so economizing with sugar.

What to Do with Bleeding Wounds.

BY DR. J. T. ROTHROCK.

As this portion of Dr. Rothrock's article refers to wounds of the arm, we, for convenience of reference, reproduce the engraving used last month.

Suppose a friend or neighbor is bleeding freely from a cut in the arm-pit. The blood flows in free jets, and there is no time to be lost. Run your finger along the collar-bone, which you know extends from the breast-bone out almost to the prominent part of the shoulder. Having found this bone, take your fingers or a door-key, and with the

ring end of the latter press *down* hard just back of and above the middle of the collar-bone and you will force the artery against the upper part of the first rib, and so close its cavity "until the doctor comes." If you wrap the end of the key with two or three thicknesses of muslin, or with your pocket-handkerchief, it will be just as efficient, and bruise the flesh somewhat less.

Suppose the injury to be below the middle of the arm and above the elbow, and that blood is spouting freely from the cut; now here it happens that any one can stop its flow. If you bend the arm so that the hand rests upon the shoulder you bring out in bold relief the muscle, to the development of which our college gymnasts and prize-fighters bestow so much attention. It is a monstrous knot of flesh which serves many important purposes in life, besides being a guide to the position of the main artery of the arm. Straighten out the arm again, for you have found in its flexed condition where the inner margin of this muscle is. Tie a knot (or two of them if need be, to get a solid lump of good size) in a handkerchief, put that knot above the injury and on the inner edge of the muscle, and tie the handkerchief loosely around the arm. Then pass a stick of three fourths of an inch in diameter and a foot long under the handkerchief, and twist it until the knot presses hard upon the artery. The band on the extended right arm of the figure shows more plainly than words how readily it may all be done.

If the cut is below the elbow, and the blood



HOW TO COMPRESS ARTERIES.

coming in jets from the wound, the same appliance would still answer, or it might be put on with the knot in the hollow of the elbow in front.

The large artery of the arm divides (or, in the language of anatomy, *bifurcates*) below the elbow, one branch going to the outer and the other to the inner side of the forearm. Both of these branches, however, are rather deeply seated, and may, especially in fleshy persons, be difficult to compress by an encircling band below the elbow. Hence, if we fail to arrest arterial bleeding in the forearm by the pressure immediately above it, we may with certainty depend on stopping it when we put the handkerchief on as directed for bleeding of the arm—i. e., above the elbow.

Those who do not yet know how to find and feel the pulse should at once learn. Suppose you have a cut at the junction of the wrist and hand, or even as low down as in the palm of the hand, with what often happens there, brisk bleeding; the strong gripe of a vigorous man around the wrist above the bleeding will usually stop it. Try your own pulses, and see how readily you can so control the beating by moderately firm pressure with the finger. It is no more difficult to do this if there is a cut below.

The arteries which resulted from division of the main artery of the arm, and ran down, one on the outer and the other on the inner side of the forearm, again unite in the palm of the hand, forming what are called the "palmar arches." Hence, to stop bleeding at a point near their reunion it is not sufficient to compress one only of the parent trunks. Both must be constricted by the bandage, else the flow will continue from the one which is cut, or if that be compressed it will appear through one of the "insensulating" branches of the other, at the farther end of the cut vessel.

(TO BE CONTINUED.)

BOYS & GIRLS' COLUMNS.

Hunting the Hare.

Farmers' boys as a general thing have fewer opportunities for fun than city boys, and yet they have many chances that city boys do not have for amusing themselves. We never saw a lot of farmers' boys having a game of base ball on a smooth meadow, although we have often seen them swinging the scythe or driving the mower or rake over it. And yet why should they not enjoy this and other games on Saturday afternoons or other occasional holidays? "All work and no play makes Jack a dull boy." Farmers' boys, as a rule, do a good share of work, and need now and then to polish off their dullness with a good frolic. Now we have a splendid game for farmers' boys which will furnish them a great deal of sport at any season of the year except the depth of winter. It is a hare hunt. Not one of those after a four-legged hare, with dogs and guns, which always made us feel sorry for the poor little helpless, harmless, creature, run to death by savage dogs, but one after a two-legged hare by two-legged hunters. A dozen or more of boys may join in the game, with one of the smartest boys to act as the hare. The hare has a satchel fastened around his shoulders filled with small pieces of paper about an inch or two square, made of newspaper. He starts off across the country over fences, across roads and creeks, through fields and woods, having a start of say 5 or 10 minutes, dropping here and there a piece of paper. This is the scent which the rest who hunt him have to follow. When the hare has got a sufficient start, the chief hunter gives a signal halloo and the pack start on the scent. The hare will keep out of sight as much as he can, doubling on his scent, throwing the dogs off as much as possible in every way; sometimes, when he has a chance, he turns back on his trail and springing to one side and hiding in the brush or behind a fence or a log or in the edge of a cornfield, until the dogs have passed him, he starts off in a new direction, which they have to come back and discover when they find the scent is lost. When the pieces of paper are all used up a whole newspaper is laid on the ground and a stone placed upon it. This is to show that the run is up and the hare has turned home. Then the nearest way home is taken, and if the hare can be caught before reaching home, the one who catches him is the hare on the next run. In this game there is a splendid chance for fun of the most exciting kind. The dogs spread out so that one or more is sure to keep sight of the "scent," and in calling to each other as they should do, that they are on the scent, they make noise enough to enliven the neighborhood all around. When the scent is lost there is a sudden silence for a time until it is struck again, when the hallooing begins once more and all the pack are as noisy as ever. In fact there is as much sport over such a hunt as there ever was over a real hunt with a pack of hounds, and a score or half a hundred of mounted hunters after a frightened hare or fox anxious to save its skin, and up to all the dodges which these hunted animals know so well, and which often help them to escape the dreaded dogs.

There should be a weekly meet during the season at some appointed place, to which all should return when the hunt is up, and the master of the hunt should announce the place and time of the next week's meet. If the hare is caught sight of during the hunt there is no longer any need to follow the scent, but he may be run down as quickly as possible unless he can get away, when the scent must be taken up again.

Aunt Sue's Puzzle-Box.

TRANSPOSITIONS.

(Fill the blanks with the italicized words transposed.)

1. I was surprised to hear that *Squire Magdan* went
2. Don't examine that — there is a *secret* in it.
3. Before we go boating is it — that *Ida* can *steer*?
4. If you are so — to come here and *rest*, *step* in.
5. *M. Carmen's* *beer* suggested unpleasant —.
6. I found pleasant — in the *Hopple* Mansion.

CROSS-WORDS.

My first is in bracelet but not in ring.
My next is in summer but not in spring.
My third is in night but not in day.
My fourth is in August but not in May.
My fifth is in pistol but not in gun.
My sixth is in hundred but not in one.
My seventh's in raven but not in crow.
My whole is a name you all well know.

FRANKLIN W. H.

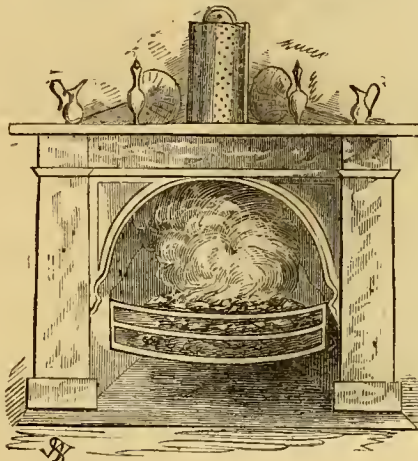
SQUARE WORDS.

- 1.—Square the word "OCEAN."
- 2.—1. Scanty. 2. A journal. 3. A fruit. 4. A memorial. 5. Perpendicular.

NUMERICAL ENIGMA.

I am composed of 6 letters:
My 1, 2, 3, 4, 5 is a part of every one.
My 2, 3, 4, 5, 6 is all the world to you and me.
My 2, 3, 4 is strongly attached to you.
My 1, 2, 3, 5 is of a melting disposition.
My 1, 3, 5 is elevated above the crown.
My 5, 2, 3, 4 is a small body of salt water.
My 1, 3, 4, 5 though often *abounding* in the country, is always *dear* in the city.
My 4, 3, 5 though often preying, never prays, nor deserves praise. (AUNT SUE does not quite agree with this last sentiment, having—herself—ejaculated, admiringly—"What a clever creature I!")
My whole is the sole support of many an orphan.

E. S. B.



435. *Illustrated Rebus.*—We have lots of rebuses on hand from Aunt Sue's correspondents, and it is not her fault that they do not go in. Those who have sent their rebuses to Aunt Sue must not blame her, but if blame belongs anywhere, it is to the editors that it must be given.—Well, here is a simple case of positive and comparative.



436. *Illustrated Rebus.*—This is not quite so easy as the other. Let us see who will make it out first.

PI.

Od town resoth sa ouy odwnl vach rothes od notu noy.

Jes.

ALPHABETICAL ARITHMETIC.

ODLFEJNOIOLF
DIN

SHO
FOS

GFLI
GFLH

LF

DOUBLE ACROSTIC.

The initials and the finals each name a quadruped.

1. A bird.
2. A fish.
3. A reptile.
4. A quadruped.

ADOLPH M. NAGEL.

ANSWERS TO PUZZLES IN THE APRIL NUMBER.

PATCHES, CUTTINGS, AND FRAGMENTS.

1. Mick, Nick, Dick. 2. Pat, Mat, Wat, Nat. 3. Sal, Hal, Cal. 4. None, one. 5. Lamb, La.
- ARITHMOREMS.—1. Phthisic. 2. Cynic. 3. Kine. 4. Elevate. 5. Immix. 6. Vex.

WORDS ENIGMATICALLY EXPRESSED.—1. Kindred. 2. Equipage. 3. Tendons. 4. Farthing. 5. Parapet. 6. Something.

CHARADE.—Madsm.

PI.—What is resolved once for all, should be long considered.

CROSS-WORD.—Spring.

NUMERICAL ENIGMA.—Providence.

ALPHABETICAL ARITHMETIC.

218)6908556(31692

(Key. My pet scarf.)

PUZZLE.— Sword, word, rod, O I

SQUARE WORD.— E X P O S E
X E R X E S
P R O B E S
O X B A K E
S E E K E R
E S S E R A

ILLUSTRATED REBUS, No. 434.—Potato. Coxcomb. Love lies bleeding. Phlox. Box. Monkey flower. Cypress.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

I would respectfully suggest to my young friends, that I have more "Cross Words" and "Numerical Enigmas" on hand than I can use in twelve months.

F. W. B. We "charge" nothing for printing enigmatical contributions, and only give prizes for special puzzles.

T. G. C. Your puzzle looks more like a shanty struck by lightning than like a fair word. But you say it is "O U T,"—well I will leave it "out." Thanks, all the same.

Thanks for puzzles, letters, etc., to J. L. Howard, Kittie, M. Sharpe, H. K. M., J. Rettew, Robt. W. M., O. A. Gage, Frank, J. H. Craig, Hubert N. R., Mary A. H., H. L. B., E. S. M., F. W. B., W. P. & E. H. A., Edwin E. P., Lizzie M., Edmond H., Kittie M. E., E. M. Welles, V. S. Peet, and Willie Masters.

AUNT SUE'S address is Box 111, P. O., Brooklyn, N. Y.

Some Curious Sea Animals.

Last month I told you about some quadrupeds that live in the sea; now I shall ask you to look at some very curious forms of animal life that are found in the sea, and nowhere else. Only a small portion of my readers live upon the sea-shore, and I doubt if many of these ever saw any animals like those I am going to tell you about, as they are for the most part found well out to sea and in southern waters. Still, we ought to be interested in everything that has life, as every animal, even the most obscure, forms a part of one great chain of which we have good authority for the belief that we are the head. Probably very few of you ever saw a Medusa, or Jelly-fish or Sea-nettle as it is variously called. I give an engraving of one which will give a general idea of the whole. Some are so small, that thousands can find sea-room in a wine-glass; others are as large as a bullet; others, again, a foot across; and we have accounts of some so large that they were estimated to weigh several tons. Formerly, they were not regarded as animals, but were looked upon as mere masses of jelly; but a more careful examination has shown them to be animals, and very curious ones, too. The engraving will give an idea of their general form. There is a mushroom-like body, from the underside of which are bodies hanging down that are called *tentacles*; these vary in length, from a few inches to several feet, and the animal has the power of extending or withdrawing these very rapidly. The jelly-like body shows that it is made up of divisions attached to a common center, and on this account these animals are called *radiates*. They have organs which serve for eyes, mouth, and stomach, and the long tentacles are useful in seizing their food. The Medusas are often beautifully colored, and have the edge of the mushroom-like body bordered by a handsome fringe. In a calm day they present a charming appearance, and I have passed hours on the Gulf of Mexico in watching these singular Jelly-fish as they floated by the vessel. I, however, made a closer acquaintance with them when I went to take a sea-bath. As I was enjoying the roll of the surf, I felt something flabby strike my back, and then a most annoying burning and prickling. Upon examining the cause, I soon found it was the Jelly-fish, and was quite willing to admit that it had a good right also to the name of Sea-nettle. These animals are so largely made up of water, that when they are thrown upon the beach the hot sun soon causes them to disappear, and there is nothing perceptible left of them. Yet this mass of jelly has its appetites and the ability to procure its food, and is able to capture and feed upon much stronger animals, such as the fishes proper, crabs, and other marine animals. It is not provided with weapons for a regular fight, but it has wonderful power of holding on, and when its numerous flexible arms or tentacles get hold of another and stronger

animal it just holds on patiently until its victim is tired out. Among the curious things about these Jelly-fish is the way in which they multiply. In their youngest state they possess the power of motion, and after a while they become attached to a stone or other object and become

Jelly-fish give off light in the dark, and it is by these that the phosphorescence of the sea that you have read about is caused.

Another strange thing often met with at sea in pleasant weather, is the "Portuguese Man-of-War," also-

called the Sea-bladder and Little Galley. The upper portion, which looks much like a blown-up bladder, is filled with air, and has a handsome crest. It is colored blue and purple, and the crest often has a tinge of carmine, so you may imagine the "Man-of-War" is a very pretty object as it floats upon the sea and is wafted along. It is not, however, like the Medusa, a single animal, but a curious compound animal made up of several united individuals. These are seen below the floating portion, and they possess the power of throwing out threads many feet in length. Though so beautiful in appearance, one must beware how he touches this "Man-of-War," as it possesses the power of stinging in a most painful manner. It throws its slender arms

always run—but if the farmer was slow of foot, his dog was not, and the urchins had hard work to keep ahead of him. They knew that if they were once across the brook they would be safe—but the water was high,



PORTUGUESE MAN-OF-WAR.

and the holes were deep, and wading was out of the question. Persons in danger have their wits finely sharpened and think very quickly, and it occurred to the foremost boy to bridge the stream by means of a young birch that grew upon its borders. Climbing up into the slender, waving top of the tree, his weight threw it across the stream, and landed him safely on the other side, where he held the bridge in place until the others



A MEDUSA OR JELLY-FISH.

fixed. Now a strange thing takes place; the young Jelly-fish grows into a body that looks like a number of saucers placed one upon another in a pile. These little saucers keep on growing, until at last the upper one breaks away from the pile, turns over, and swims away

around one, and at the same time gives off a fluid that produces the most painful irritation. There are several accounts of persons who have come in contact with these while bathing and found great difficulty in reaching the shore.

THE DOCTOR.



THE BRIDGE OF SAFETY.—Drawn and Engraved for the American Agriculturist.

from the rest a regular Jelly-fish. After a while, the next saucer-like body goes through with the same performance, until each one of the pile of a dozen or more saucers has in its turn grown to the proper size and started off in an independent life. Some of the minute

No doubt these youngsters have been out on some skylarking expedition, and have been caught in a scrape. Perhaps they made a raid upon the melon-patch or the orchard of some farmer who started in pursuit. Of course they ran—people who feel that they are guilty

could cross in the manner that you see in the picture. It is wise to take a good idea from a bad boy, and the bridge built in a hurry by these young rogues to escape pursuit may serve as a hint to others who see no other means of crossing a deep stream.

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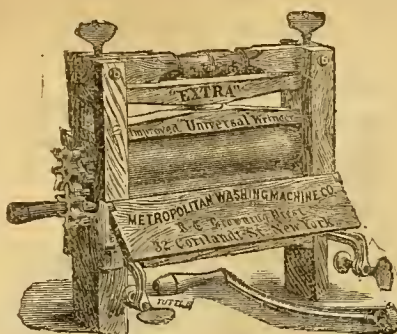
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"1, Jr.,	A Youth,	10 inches,	28 lbs.
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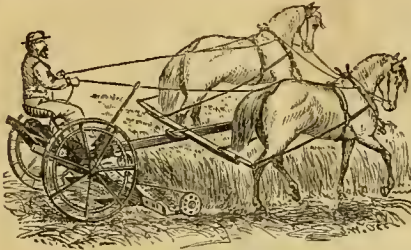
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See March and April Nos. of this Paper.

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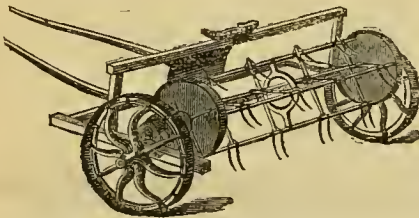
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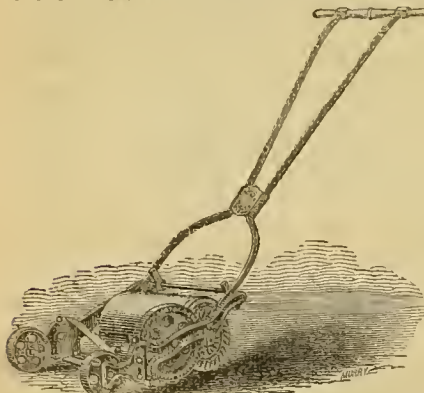
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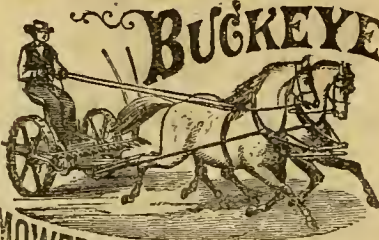
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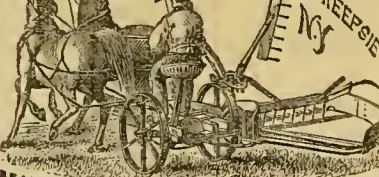
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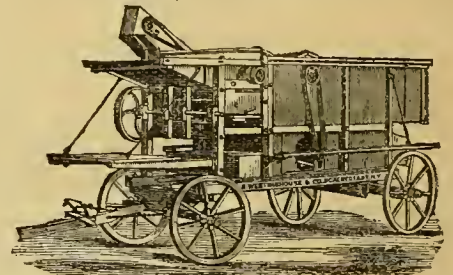
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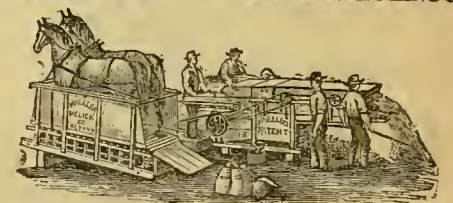
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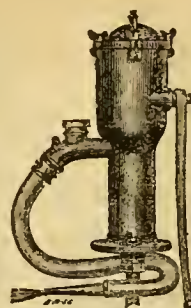
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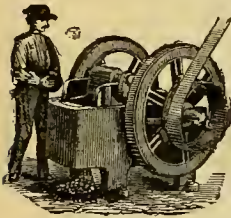
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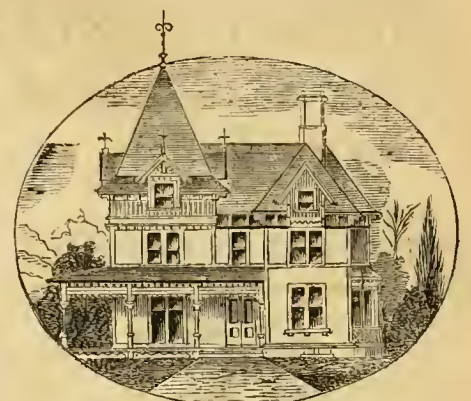
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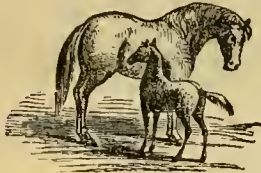
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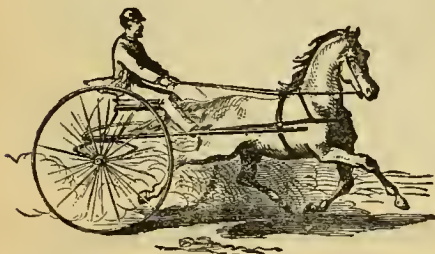


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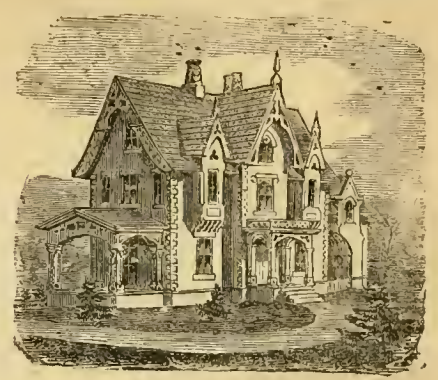
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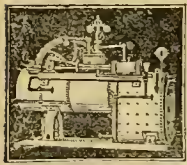
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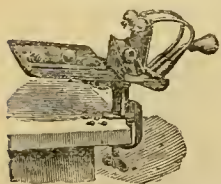


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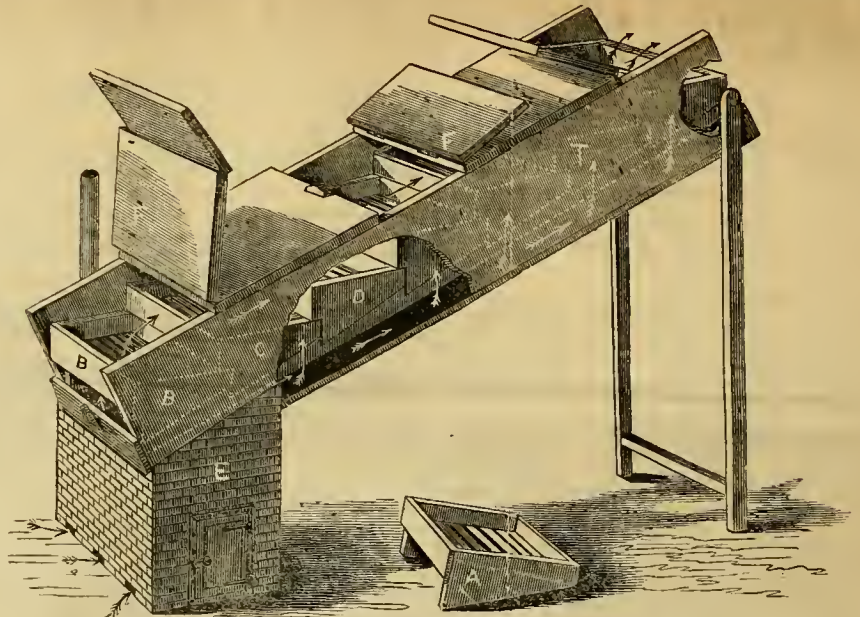
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VOLUME XXXII.—No. 7.

NEW YORK, JULY, 1873.

NEW SERIES—No. 318.



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ROAD MENDING.—Drawn and Engraved for the American Agriculturist.

In the above engraving is represented a scene of very common occurrence in the majority of country districts. Working out the road-tax is generally made an occasion for mingling a little work with a good deal of good-natured gossip, some politics, and much discussion as to the propriety of this way or that way of filling up a mad hole or repairing a ditch. If this should be looked upon in a way that would occur to a person of the amiable disposition of Mr. Gradgrind, he might object to such a method of doing business as far from economical, and as a waste of time. But Mr. Gradgrind was no

farmer, and never worked out his tax. We have done so, and we know how much a man feels better all over after an hour's shoveling is followed by an equal amount of rest, and moreover it always turns out that the road-work is "done," even though it should need to be done over again in the same way next season. But yet it did sometimes occur to us that this was not quite the way in which work was done at home, and the question "Does this pay?" came up occasionally for consideration. We confess to thinking it did not, and still hold to that opinion, and have little doubt that in

country road-making and mending, as well as in almost all other things, "old things are passing away." If there is one thing more than another in which we need to mend our ways it is in regard to our country roads. The better the roads the more valuable the farms alongside of them, and the greater the value of every pound of produce carted over them. This is true without a question. Then it becomes a serious matter to have roads built so that they may be easily passable, and be kept so without needing the annual outlay of several days' work to each farmer in repairing them.

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Calendar for July.

Day of Month.	Day of Week.	Boston, N. Eng.			N. Y. City, Ct.			Washington, Maryland, Virginia, Kentucky, Missouri, and California.		
		Sun.	Mon.	Tues.	Sun.	Mon.	Tues.	Sun.	Mon.	Tues.
1	T	4 25 7 40	11 46	4 31 7 34	11 46	4 37 7 39	11 45	4 37 7 39	11 45	4 37 7 39
2	W	4 26 7 40	11 46	4 32 7 34	11 46	4 38 7 39	11 45	4 38 7 39	11 45	4 38 7 39
3	T	4 27 7 40	11 46	4 33 7 34	11 46	4 39 7 39	11 45	4 39 7 39	11 45	4 39 7 39
4	W	4 28 7 39	0 48	4 34 7 33	0 51	4 40 7 38	0 54	4 40 7 38	0 54	4 40 7 38
5	T	4 29 7 39	1 14	4 35 7 33	1 18	4 41 7 38	1 22	4 41 7 38	1 22	4 41 7 38
6	W	4 30 7 39	1 48	4 36 7 32	1 53	4 42 7 37	1 58	4 42 7 37	1 58	4 42 7 37
7	T	4 31 7 38	2 30	4 37 7 32	2 36	4 43 7 37	2 42	4 43 7 37	2 42	4 43 7 37
8	W	4 32 7 38	3 31	4 38 7 31	3 42	4 44 7 36	3 48	4 44 7 36	3 48	4 44 7 36
9	T	4 33 7 37	9 13	4 39 7 31	9 13	4 45 7 36	9 13	4 45 7 36	9 13	4 45 7 36
10	W	4 34 7 36	10 22	4 40 7 30	10 22	4 46 7 35	10 17	4 46 7 35	10 17	4 46 7 35
11	T	4 35 7 36	10 47	4 41 7 30	10 46	4 47 7 35	10 46	4 47 7 35	10 46	4 47 7 35
12	W	4 36 7 35	11 11	4 42 7 29	11 11	4 48 7 34	11 22	4 48 7 34	11 22	4 48 7 34
13	T	4 37 7 34	11 35	4 43 7 29	11 38	4 49 7 34	11 40	4 49 7 34	11 40	4 49 7 34
14	W	4 38 7 33	0 2	4 44 7 28	0 5	4 50 7 33	0 8	4 50 7 33	0 8	4 50 7 33
15	T	4 39 7 32	0 31	4 45 7 27	0 37	4 51 7 32	0 42	4 51 7 32	0 42	4 51 7 32
16	W	4 40 7 32	1 8	4 46 7 26	1 1	4 52 7 31	1 10	4 52 7 31	1 10	4 52 7 31
17	T	4 41 7 31	1 49	4 47 7 26	1 55	4 53 7 31	2 1	4 53 7 31	2 1	4 53 7 31
18	W	4 42 7 30	2 36	4 48 7 25	2 42	4 54 7 30	2 49	4 54 7 30	2 49	4 54 7 30
19	T	4 43 7 29	3 33	4 49 7 25	3 39	4 55 7 30	3 46	4 55 7 30	3 46	4 55 7 30
20	W	4 44 7 28	8 40	4 50 7 24	8 35	4 56 7 29	8 31	4 56 7 29	8 31	4 56 7 29
21	T	4 45 7 27	9 6	4 51 7 23	9 3	4 57 7 28	9 0	4 57 7 28	9 0	4 57 7 28
22	W	4 46 7 26	9 30	4 52 7 22	9 28	4 58 7 27	9 25	4 58 7 27	9 25	4 58 7 27
23	T	4 47 7 25	9 50	4 53 7 21	9 49	4 59 7 26	9 48	4 59 7 26	9 48	4 59 7 26
24	W	4 48 7 24	10 9	4 54 7 20	10 9	4 59 7 25	10 9	4 59 7 25	10 9	4 59 7 25
25	T	4 49 7 23	10 23	4 55 7 19	10 31	4 59 7 24	10 32	4 59 7 24	10 32	4 59 7 24
26	W	4 50 7 22	10 50	4 56 7 18	10 33	4 59 7 23	10 53	4 59 7 23	10 53	4 59 7 23
27	T	4 51 7 21	10 50	4 57 7 17	10 33	4 59 7 23	10 53	4 59 7 23	10 53	4 59 7 23

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3d Quart.	14 14 ev.	4 2 ev.	3 50 ev.	3 34 ev.	3 8 ev.
New M'n	24 5 50 m.	5 33 m.	5 26 m.	5 14 m.	4 44 m.

AMERICAN AGRICULTURIST.

NEW YORK, JULY, 1873.

The great truth which the *American Agriculturist* aims to teach and enforce is the necessity for better farming. Every year the partial failure of some of our crops illustrates the importance of the lesson. These failures rob us of half our profits. Some years we have poor corn, and some years poor potatoes or poor hay. This year, in our own neighborhood, we have poor winter wheat. It is time we looked this matter squarely in the face. The seasons do not change. What has been will be. We have always had floods and drouth, cold winters and hot summers. It is the part of wisdom to expect them and prepare for them.

Right before our eyes where we now write is a twenty-acre field of wheat, half of which will produce over 30 bushels per acre, and the other half not three bushels. The poor crop is attributed to the bad season. The good crop is due to richer land and better culture. It will not do to say that the season has nothing to do with the failure on one-half of the field; but it is certain that good farming will to a considerable extent enable us to get profitable crops even in the worst seasons. This is a lesson we are exceedingly slow to learn. We must farm better. We do not advocate any great radical changes in our system of farming. We propose no extravagant expenditures. We recommend nothing that farmers can not carry out. We simply urge them to spare no efforts to clean and enrich their land. We want them to fully realize the absolute necessity there is for a better system of farming.

Hints about Work.

Haying and Harvesting are supposed to be the most important work of the month. In one sense this is, of course, true. But any one who keeps a record of the daily and hourly work done on the farm will be astonished to find how small a proportion of his time is spent in the actual operations of cutting and gathering the crops.

Thirteen Hours a Day spent in actual work gives us 338 hours in the month. An average farm em-

ploy perhaps five persons. This gives 1690 working hours during the month.

How are these Hours Spent?—Will our readers take a pencil and figure up? We think it will be found that not one-half of these working hours are spent in doing what we call important work. And if this is so, the really important work of the farm must be looked for outside of the regular operations that we think and talk about.

Look for the Weak Spot.—The success of a farmer depends very much on his ability to discover where time is lost, and on his skill and promptness in rectifying the trouble. The weak spot differs on different farms, but it always exists. See if you can find it.

Machinery is a great help, provided a farmer knows how to use it. He must keep it in thorough repair and in working order. As a rule, a farmer will generally do better to hire as much of his work done by machinery as possible, rather than to keep the machines himself.

Haying on a large grain farm should be pushed forward as rapidly as possible, so as to be out of the way before the grain is ready to cut.

Better Cut Grass too Early than too Late; and we have found from experience that it is not well to be too timid in regard to the weather.

Get the Hay in as Fast as you can Cure it.—If you do this, you need not hesitate to cut down the grass for fear of bad weather. On the other hand, however, be careful not to cut down more hay than you have force enough to handle.

In Making Hay, the essential points are to get rid of the moisture in the grass as rapidly as possible. We should aim to expose it as much as possible to the sun and air; but the shorter the time it is exposed the better, provided it is sufficiently cured to keep without molding. Above all, aim to avoid exposing cured or partially cured hay to dew and rain.

Green Grass, freshly cut, can be exposed to rain or dews with little or no damage. For this reason we like to cut in the afternoon or evening, and let the grass lie undisturbed until the dew is off the next morning. Then use the tedder, and try to get the hay ready to draw in during the afternoon. Any hay that can not be drawn in should be made into cocks before the dew falls. Where there is force enough, the most economical way to draw in hay is with three wagons. The pitcher remains in the field all the time. One wagon is going back and forth all the time, one is at the barn, and one in the field. A good pitcher should send home a fair two-horse load every 25 minutes.

Make Good Loads, but not high ones. All loaders have a tendency to draw in their loads at each end. This involves an unnecessary expenditure of power on the part of the pitcher.

A Boy to Drive the Wagon from Cuck to Cuck will save much time. A good pitcher will give a loader all he wants to do without his having to look after the team. Where the loader drives, half the time is often spent in getting from cuck to cuck. If you doubt it, test it by the watch.

A Little Salt, say a quart to a ton, may be scattered on the hay as it is put in the barn or stack with advantage. It is a mistake to suppose that salt draws moisture from the atmosphere. It draws it out of the hay.

Wheat should be Cut as soon as the grain ceases to have any "milk" in it, but not before. With us, straw is so valuable that we cut as close to the ground as possible. An inch of straw at the ground weighs as much as two inches at the top.

Binding is now the costly work of harvesting wheat. We have known a farmer pay \$4 per day to men to bind a light crop of wheat that was so full of thistles that they could not do more than half a good day's work. We would have made "rakings" of the whole crop; or rather we would have left it in the galls as thrown off by the reaper and pitched it with a barley-fork. Anything is better than submitting to the extortionate de-

mands of itinerant vagabonds who are too lazy to take fair wages for steady work.

Barley, if a good crop, is best harvested by cutting with a reaper and binding it into sheaves like wheat. But if there is not time for this, cut it with the reaper in the afternoon or evening. Let it lie in the swath or gavel all night, and the next morning as soon as the dew is off turn it. Turn it again before dinner; and if the weather is favorable, and the crop free from weeds, it will be ready to draw in in the afternoon. If not, put it into cock and draw in the next day.

Oats require much longer time to cure; otherwise they can be harvested in the same way. Have them well cured before putting in the barn.

Indian-Corn.—It will not do to neglect this important crop during haying and harvesting. Whenever a man can be spared, let him take a horse and cultivate corn. Farmers are improving in this respect, but even yet we rarely cultivate our corn half enough. We often cultivate our own corn as late as the first of August. "It is the last blow that kills the ear," and it is the last hoeing or cultivating that kills the weeds and insures clean land. Let the cultivator run shallow so as not to cut the roots. Put a muzzle on the horse to prevent his eating. He will go much more steadily, and the work will be better done. Go over the field with a hoe, and cut out or pull out any weeds that the cultivator can not reach.

Potatoes should be cultivated as long as the teeth do not disturb the runners. Afterwards, keep the land clean with the hoe, or by pulling out the large weeds by hand. You must get rid of the weeds or give up the hope of raising a good crop.

Sweede Turnips or *Ruta-bagas* should be sown without delay. Drill in from one to two pounds of seed in rows 2 to 2½ feet apart. Thin out to ten or twelve inches in the rows.

Common White Turnips can be sown any time during the month.

Mangel-Wurzel or *Beets* should now be ready for the second hoeing. Use the cultivator freely between the rows, and do not suffer a weed to grow.

Summer-Fallows should be plowed the second time this month; or, at any rate, kept entirely free from weeds by the use of the cultivator.

Rye may be sown on clover as soon as the first crop is gathered—say one to two bushels per acre.

Manure may be drawn out and spread on meadows or grass land, and harrowed with a smoothing harrow. Or it may be drawn out and spread on the fallows for wheat.

Corn for Fodder, if sown in drills, should be repeatedly cultivated. If sown broadcast, we have no hints to give. You do not deserve a good crop, and probably will not get it.

Horses, if not worked hard, will be better at pasture than in the stable. A good clover pasture is best for them. If the horses are thin, and you wish to get them in better condition, let them have in addition to the pasture all they will eat of a mixture of cut hay and oat or corn meal, in the proportion of a bushel of chaff to 4 quarts of meal.

Milk-Cows on our own farm are allowed the mixture alluded to above. When the pastures are good, they will not eat much of this cut feed, and we mix less chaff with the meal. We want each cow to get a quart of corn-meal twice a day, but want her to eat something with it.

Sheep require comparatively little attention this month. See that they do not suffer for want of water. Do not let the butcher tempt you to part with your best ewe lambs. If not already done, dip the lambs in a solution of carbolic soap to kill the ticks. Do not neglect this another day.

Pigs should have access to all the fresh water they can drink. If kept in a pen, there should be two troughs, one for food and one for water, and the latter should always be kept full of clean water. Give charcoal or ashes, sulphur, and salt. Keep pens and troughs clean, and wash them out at least once a week with crude carbolic acid and water. If the pigs themselves could be washed, it would

be good for them. Pigs running in the pasture, if intended to be fattened this fall, should have a liberal allowance of corn in addition to the pasture. Breeding sows will keep in good healthy condition on clover alone. Young pigs should always have all they can eat. Feed regularly, and keep clean. Now is a good time to secure a young boar of some well-established breed.

Work in the Horticultural Departments.

The warm weather will give weeds as well as plants a new impetus, and only active measures will keep the weeds from surpassing the plants in growth. The hot sun will readily kill the weeds if the ground is hoed often. Where the crops are planted at a proper distance, a horse-cultivator proves the best implement for stirring the soil; but, at any rate, the soil must be kept light and open. In seasons of drouth, crops flourish better if the ground is constantly loosened, as the heavy dews have an opportunity to reach the roots, and thus keep the plants from suffering, as they would if the surface was baked by the sun.

Orchard and Nursery.

Marketing of early fruits will be the principal work in this department, and the grower should make it an invariable rule to offer only good, marketable fruit for sale. If necessary, make two qualities, and the increased returns will pay for the extra trouble in sorting.

Peaches.—Pick when they are just firm enough to bear transportation, so that by the time they reach the markets they will be in good eating condition.

Thinning may now be attended to, though rather late. The poorer specimens of apples and pears should be removed, so that only good fruit may ripen. Pear trees will sometimes need going over twice, as one seldom has the courage to remove a sufficient quantity the first time.

Budding is to be done as soon as the bark of the stock will separate readily from the wood, and when good buds of the present season's growth can be had. To hasten the maturity of buds, pinch the ends of the shoots.

Insects will continue to make their appearance. Even if great care has been taken to destroy those met with earlier in the season, a Tent-catepillar's nest will now and then be found. Red Spider often makes its appearance on fruit trees, as well as on ornamental ones, its presence being indicated by the brown tinge upon the leaves. To destroy it, syringe with carbolic soap-suds or whale-oil soap.

Cordon Trees trained upon trellises and wires will need frequent pinching to regulate their shape and insure an even and regular growth.

Young Trees planted in nursery rows will need attention now to prevent their being overrun with weeds. If planted at sufficient distance apart, a horse and cultivator can be used to advantage. Beds of seedling trees must be hand-weeded.

Fruit Garden.

Strauberrries.—Keep the runners cut upon beds which are to remain permanently. After the fruit is off, give the beds a dressing of fine manure, ashes, or guano, working it in between the rows. When weeds make their appearance in mulched beds pull them up. Plants struck in pots may be set out at any time after they are well rooted.

Blackberries and Raspberries should not be allowed to grow higher than five feet; when the new canes reach this height pinch off the growing end. The lateral branches must be pinched back in the same way when they are 18 inches long. Do not allow suckers to grow unless plants are needed for filling vacancies.

Marketing.—Extended articles upon marketing the various small fruits were given in June and in the present number, and are worth looking to carefully, as upon the condition in which the various fruits

arrive in the market is dependent the profit or loss upon them.

Grapes.—As soon as mildew makes its appearance, sulphur should be applied; it will appear in gray patches upon the stems and leaves, and if attended to at once it can be prevented from extending farther. Keep down weeds between the rows, and the soil light, so that whenever showers happen the rain can easily penetrate to the roots. Pinching the laterals and rubbing out superfluous shoots must be attended to. The labor is slight, the thumb and finger only being needed.

Kitchen Garden.

Asparagus.—Keep the weeds down by applying a good mulch of coarse manure. Let the tops grow until fall, when they may be cut and burned.

Beans.—Late plantings may be made for salting or pickling. See that the pole-beans are not allowed to straggle away from the poles, as this will prevent their being cultivated with a horse cultivator.

Carrots.—Thin and weed the late sowings, and keep the ground between the rows loose by the use of the hoe until the tops cover the ground.

Celery.—Set out plants for winter use, and keep the ground light and free from weeds.

Corn.—Select the earliest and best-shaped ears for seed next year. If the plants are too thick in the drills, thin at once and dry for fodder.

Cucumbers.—The insects will need looking after constantly, and if any plants die without apparent cause, the probability is that there is a borer at the root: dig out and destroy. Those planted late for pickles will need dusting with lime or plaster when the vines are wet, to hinder the Striped-bug Beetle.

Egg-Plants will stand a great deal of forcing, and a watering of liquid manure once a week will hasten their growth. Kill the "Tomato-worm," which often attacks these plants.

Leeks.—Cultivate the ground between the rows, and thin out the plants if too thick.

Melons.—Cultivate the soil until the vines cover the ground. Remove all fruit that will not ripen. Save seed only from those plants grown at a distance from other varieties.

Onions.—When the majority of the tops fall over they are ready for harvesting. They should be first thoroughly dried, and afterwards stored in a cool, dry place where the air is allowed to circulate.

Spinach.—Sow seed for fall crop in good rich land. The crop to winter over is sown later.

Squashes.—Treat the same as recommended for cucumbers and melons. When the vines root at the joints allow them to remain.

Sweet-Potatoes.—Cultivate and keep clear of weeds until the vines cover the ground. Move the vines occasionally to prevent their rooting at the joints.

Tomatoes.—A great deal may be done to improve this excellent fruit if attention is paid to select for seed only those specimens which are of good shape, with solid flesh. Some mode of training should be resorted to to secure the best fruit, and to do this will require care in pinching the shoots and cutting out useless branches.

Turnips.—Dust the young plants with lime or ashes to keep off the insects.

Flower-Garden and Lawn.

Lawns.—The intense heat of the summer is likely to dry up the grass of those which were made in the spring, unless it is watered occasionally during drouths. Annual grasses will also most likely make their appearance; these will leave a bare brown spot in the fall. The ground should be rolled and frequently mowed to encourage the formation of a close turf.

Bedding Plants set out last month will need a good deal of care to keep the weeds down and the soil loose so that they may grow rapidly. It will be necessary to use the knife to give good shape.

Gladioluses.—Tie up to stakes, so that the flower-spikes will not be broken by high winds.

Roses, whether pegged down or trained as standards, will need attending to. Cut back the ever-blooming sorts, as soon as they have flowered, to a strong bud, and they will soon flower again.

Chrysanthemums will need pinching into shape. Do not allow the branches to become crowded, as the lower leaves will be likely to decay.

Dahlia.—As soon as large enough to need it, tie up to stakes. Give occasional waterings of liquid manure to keep them in good growing condition.

Lilies.—Stake the weaker sorts, and cut off the flowers as soon as faded.

Edgings will require cutting to keep the grass-roots from extending to the beds and walks; to do this neatly, an edging-knife is the best instrument.

Perennials.—As soon as the seeds are ripe gather all which are needed for propagation; if sown at once they will germinate very readily.

Potted Plants, which have not been plunged, will need attention to prevent their drying out.

Greenhouse and Window-Plants.

But few directions are needed for this department this month, as those given last month are applicable to this. The principal work is to keep the plants free from insects and in a healthy condition. Climbers on the rafters will need training, so as to afford plenty of shade during the summer heat. There will also be the work of gathering together seeds and soil for potting use during the winter. Summer is also the best time for making any necessary repairs upon the boilers or pipes, or for putting up new glass and repairing the old. If the plants are not sufficiently protected from the sun by the climbers it will be necessary to coat the glass with whitewash. Frequent showering of the walks will keep the atmosphere from becoming too dry.

Commercial Matters—Market Prices.

Gold has been as low as 117½, and as high as 118½—closing June 13th at 117½, as against 118½ on May 12th. Under very liberal arrivals of produce, especially of breadstuffs, the markets have been generally depressed and lower. Flour, Wheat, Corn, Oats, and Rye have been offered much more freely at materially reduced prices, leading an active business, in good part for forward delivery, and in Flour, Wheat, Corn, and Rye, largely for export, closing heavily. The bulk of the receipts of Corn, through the canal thus far, graded no better than steamer stock. Winter Wheat has been unusually dull and irregular. Provisions have been in fair request, but at variable figures. Butter and Cheese closed weak, the latter particularly so, under ampler offerings. Eggs advanced sharply on lighter arrivals. Cotton closed stronger, with a livelier inquiry noted. Hay, Hops, Hemp, Seeds, and Tobacco have been in moderate demand on the basis of our revised quotations. A Butter and Cheese Exchange has been formally organized since our last, to represent these very important producing and trade interests. In Wool, the transactions have been comparatively moderate, the demand having been mainly for manufacturing purposes and to provide for immediate wants. Domestic product has been offered reservedly, the supply of old stock having been limited, and the arrivals of new thus far comparatively light, with prices quoted weak. The principal business in domestic has been in Fleece and washed carpet qualities. In Palled there has not been much movement. Of California Spring Clip the receipts are increasing, leading to some show of animation. Foreign varieties have met with a rather slow sale, despite the free offerings and the accommodating disposition of holders.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending June 13th, 1873, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's this m'th.	313,000	2,627,000	2,712,000	103,500	75,000	838,000
25 d's last m'th.	312,000	2,619,000	2,706,000	101,000	73,000	835,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 d's this m'th.	305,000	2,512,000	2,776,000	106,000	35,000	1,677,000
25 d's last m'th.	286,000	1,678,000	2,274,000	71,000	147,000	1,512,000
2. Comparison with same period at this time last year.						
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 days 1873.	313,000	2,627,000	2,712,000	103,500	75,000	838,000
26 days 1872.	299,000	2,119,000	2,172,000	184,500	328,000	1,897,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
26 days 1873.	305,000	2,512,000	2,776,000	106,000	35,000	1,677,000
26 days 1872.	194,000	1,401,000	5,119,000	168,500	155,000	1,443,000

Stock of grain in store at New York.

	Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.
June 9, 1873.	126,531	531,891	4,273	13,97	162,04	187,751
May 5, 1873.	218,233	585,233	4,273	13,97	162,04	187,751
Apr. 10, 1873.	189,000	805,207	37,360	45,764	176,006	181,496
Mar. 10, 1873.	671,197	2,515,892	37,360	45,764	176,006	181,496
Feb. 10, 1873.	805,561	3,189,195	30,589	468,934	99,131	173,100
Jan. 10, 1873.	1,177,359	4,719,961	44,039	671,051	136,187	175,805
Dec. 9, 1872.	1,335,975	5,675,730	51,665	624,554	1,608,865	215,326
Nov. 8, 1872.	1,015,553	197,208	271,365	15,082	1,115,032	80,447
Oct. 8, 1872.	1,881,946	424,836	355,430	199,691	78,387	

4. Exports from New York, Jan. 1 to June 12.

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Peas.
1873.	535,562	3,241,919	5,384,410	20,823	16,526	13,616	33,200
1872.	363,340	3,242,961	6,966,700	252,624	22,658	15,178	
1871.	374,000	4,153,723	3,200,638	34,919	78,818	14,889	
1870.	727,097	5,435,283	1,905,519	36,555		9,375	
1869.	420,294	8,802,539	1,328,569			40,401	
1868.	403,556	2,580,805	3,539,097	153,003		39,005	

5. Receipts at head of tide-water at Albany each season to June 8th.

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
1873.	24,000	1,124,800	1,672,500	114,400	13,000	346,800
1872.	22,000	960,800	1,988,500	185,700	531,000	757,200
1871.	38,500	2,511,700	2,098,300	38,200	29,700	538,500
1870.	33,100	1,900,600	127,700	41,200	78,900	382,500
1869.	38,500	1,531,000	718,000	124,400	11,800	516,600
1868.	65,700	3,684,900	3,297,400	119,200	326,200	1,861,800
1867.	17,100	21,700	592,100	38,000	28,200	276,500
1866.	34,200	317,200	2,090,700	61,300	41,700	688,700
1865.	31,700	547,900	731,800	51,000	114,300	1,911,800

CURRENT WHOLESALE PRICES.

	May 13.	June 13.
PRIOR OF GOLD	118½	117½
Flour—Super to Extra State	65 @ 8 25	55 @ 8 00
Super to Extra Southern.	60 @ 12 50	55 @ 11 25
Extra Western.	65 @ 12 50	60 @ 11 00
Extra Genesee.	8 25 @ 10 50	8 10 @ 10 50
Superfine Western.	5 65 @ 6 25	5 80 @ 6 00
RYE FLOUR	4 10 @ 6 00	4 10 @ 5 90
CORN-MEAL.	3 15 @ 3 75	3 15 @ 3 65
WHEAT—All kinds of White.	1 85 @ 2 30	1 70 @ 2 00
All kinds of Red and Amber.	1 30 @ 2 05	1 20 @ 1 85
COY—Yellow	67 @ 68½	63 @ 65
Mixed	50 @ 56½	42½ @ 51½
OATS—Western.	51 @ 50½	45 @ 53
State	95 @ 1 00	90 @ 95
RYE	70 @ 1 18	Nominal.
BARLEY	75 @ 1 50	70 @ 1 40
HAY—Bale, 100 lbs.	55 @ 1 10	50 @ 1 10
STRAW, 100 lbs.	19½ @ 20	19½ @ 20½
CORTON—Middling, 40 lb.	35 @ 50	35 @ 50
HOPS—Crop of 1872, 40 lb.	65 @ 82½	65 @ 85
FEATHERS—Live Geese, 40 lb.	8½ @ 9	8½ @ 9
SEED—Clover, 40 lb.	4 50 @ 4 60	4 25 @ 4 40
Timothy, 40 bushel.	2 25 @ 2 40	2 25 @ 2 40
FLAX—40 bushel.	7½ @ 9½	7½ @ 9½
SHOGAR—40 lb. Ceylon	22 @ 45	18 @ 42
MOLASSES, Cuba, 40 gal.	55 @ 80	55 @ 80
New Orleans, 40 gal.	17½ @ 19½	18½ @ 19½
COFFEE—Rio (Gold).	7 @ 15	9 @ 15
Tobacco, Kentucky, &c., 40 lb.	9 @ 15	9 @ 15
Seed Leaf, 40 lb.	32 @ 55	45 @ 57
WOOL—Domestic Fleece, 40 lb.	28 @ 48	32 @ 48
Domestic, 40 lb.	18 @ 38	18 @ 35
California, clip.	8½ @ 9	8½ @ 8½
TALLOW, 40 lb.	87 50 @ 11 00	86 50 @ 10 50
OIL—Coke, 40 lb.	17 00 @ 17 75	16 25 @ 16 75
PORK—Mess, 40 barrel.	14 @ 14	14 @ 14
PRIME, 40 barrel.	9 00 @ 11 00	9 00 @ 11 00
BEEF—Plain mess.	8½ @ 9½	8½ @ 9
LARD, in tins, 40 barrels, 40 lb.	30 @ 45	20 @ 32
BUTTER—State, new 40 lb.	25 @ 8½	15 @ 23
Western, 40 lb.	6 @ 10½	7 @ 14½
CHEESE	1 50 @ 3 00	1 75 @ 2 60
BRANS—40 bushel.	1 35 @ 1 45	1 15 @ 1 35
PEAS—Canada, free, 40 lb.	14½ @ 16½	19 @ 22
EGGS—Fresh, 40 dozen	14 @ 21	8 @ 18
POULTRY—Fowls.	13 @ 18	11 @ 18
Turkeys—40 lb.	1 25 @ 2 50	1 25 @ 2 50
Geese, 40 pair.	75 @ 25	75 @ 1 50
Ducks, 40 pair.	1 25 @ 2 50	3 00 @ 4 00
TURNIPS—per bunch.	8 00 @ 20 00	2 00 @ 12 50
CABBAGES—per 100.	4 00 @ 7 00	4 50 @ 5 00
ONIONS—per bbl.	8 @ 7½	3 @ 7
BROOM-COEN—per bbl.	1 20 @ 2 50	1 00 @ 3 75
APPLES—per barrel.	1 50 @ 3 50	1 50 @ 3 25
POTATOES—per bbl.	8 50 @ 10 00	8 50 @ 4 00
SWEET POTATOES—per bbl.	— @ —	— @ —
CABBAGES—per doz.	4 00 @ 6 00	2 50 @ 4 00
CRANBERRIES—per bbl.	— @ —	75 @ 1 00
KALE, per bbl.	— @ —	6 @ 15
CHERRIES, per quart.	— @ —	15 @ 20
GOOSEBERRIES, per quart.	— @ —	9 @ 9 50
STRAWBERRIES, per quart.	— @ —	50 @ 75
POTATOES, new, per bbl.	1 00 @ 1 25	50 @ 75
TOMATOES, " per crate.	2 00 @ 3 00	2 00 @ 2 50
GREEN PEAS, per crate.	— @ —	3 00 @ 5 00
RUTABARD—per doz.	1 00 @ 1 50	2 00 @ 3 00
RADISHES—per 100.	1 50 @ 2 00	1 50 @ 2 00
SPINACH—per 100.	1 75 @ 2 50	1 50 @ 2 00
CUCUMBERS—per crate.	— @ —	1 50 @ 3 00
LETTUCE, per 100.	— @ —	3 00 @ 4 00
ASPARAGUS, per doz. bunches.	— @ —	1 80 @ 1 50
STRING BEANS, per crate.	— @ —	1 50 @ 2 00

New York Live-Stock Markets.

WEEK ENDING	Deer.	Cows.	Cattle.	Sheep.	Swine.	Total.
May 19th.	9,370	81	8,503	17,681	36,521	67,946
May 26th.	8,058	78	4,431	17,195	36,051	65,811
June 2d.	9,204	79	4,483	18,268	38,822	69,854
June 6th.	8,914	71	4,615	20,497	38,975	68,183
Total for 4 weeks.	35,576	312	17,105	73,671	135,369	261,999
do. for prev. 5 weeks.	44,651	470	15,492	81,310	211,302	351,927

Average per Week.	Deer.	Cows.	Cattle.	Sheep.	Swine.
do. do. last Month.	8,891	73	4,476	18,409	33,842
do. do. prev. Month.	8,921	94	3,098	16,281	42,240
	7,177	154	1,192	15,115	35,918

There was a large supply the first and third weeks, and a fair supply the second and fourth weeks of the month. The quality was better than during the previous month, but prices were ½c. 3 lb. lower. The demand was fair, but the sales have averaged slow. The Texans have been less in quantity, and better in quality generally speaking, averaging a shade stronger prices.

The prices of the past 4 weeks were:

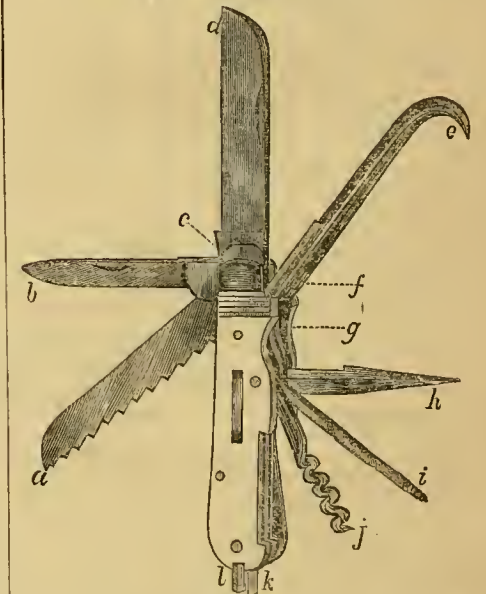
	Range.	Large Sales.	Aver.
May 19th.	9½ @ 13½c.	11½ @ 12½c.	11½c.
May 26th.	10 @ 14 c.	11½ @ 11½c.	11½c.
June 2d.	9½ @ 14 c.	11½ @ 11½c.	11½c.
June 6th.	9½ @ 13½c.	11½ @ 11½c.	11½c.

Milk Cows.—There has been a moderate demand,

with light supply, during the month. The quality ordinary to fair; sales slow. Prices ruling \$25 @ \$35 for ordinary; \$40 @ \$65 for fair to good \$70 @ \$80 for choice; and a few prime sold at \$85 @ \$90.

Calves.—Both the supply and demand for veal calves have been larger than the previous months, with prices averaging about the same. Dressed calves have sold fairly at a little advance in price. Quotations for live, 7c. @ 10c. 3 lb; dressed, 5c. @ 10c. for poor to good, and 10c. @ 13c. good to choice. **Sheep.**—The markets have been irregular, varying from brisk to dull. The supply has been larger, and the market closes with prices a little easier, very few woolled sheep arriving. Quotations for clipped, 6c. @ 7c. **Swine.**—The demand for live hogs has been light. There is no activity in the markets. Nearly all the hogs arriving are shipped to slaughterers direct. Prices have been uniformly weaker, closing at 6½c. @ 7c. for dressed, and nominally 5c. @ 5½c. for live.

SPECIAL PREMIUMS STILL OFFERED.



MULNUM IN PARVO KNIFE, OPEN—WEIGHT 2 OZ.

The General Premium List closed July 1st. The following Special Premiums are continued until further notice:

The Mulnum in Parvo Knife for 8 subscribers to *American Agriculturist* at \$1.50 each a year; or 5 subscribers to *Hearth and Home* at \$3.00 each a year; or 6 subscribers for one year to both the above papers at \$4.00 each a year. (Knife sent post-paid.)

The Beckwith Improved \$12 Sewing Machine for 16 subscribers to *American Agriculturist* at \$1.50 each a year; or 8 subscribers to *Hearth and Home* at \$3.00 each a year; or for 9 subscribers to both papers at \$4.00 each a year.

To secure the Chromos, mounted and prepaid, 25 cents must be remitted with each subscription for *American Agriculturist*, and 50 cents with each for *Hearth and Home*.

N. B.—Two half-year subscribers in all the above cases may count for one full year in a Premium Club List, but no Chromos are given to half-yearly subscribers.



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They can secure the AMERICAN AGRICULTURIST for Six Months.

We invite all parties not acquainted with our valuable paper to try it for six months, from July to December. Subscriptions will be received for that time at seventy-five cents each. Almost daily we hear the remark that some item in the *American Agriculturist* is worth far more than a year's subscription (\$1.50.) Please understand, we will send it for six months beginning July '73, for 75c. Of course this does not include the beautiful chromo "Mischief Brewing," which is offered to all yearly subscribers free when taken at 245 Broadway, twenty-five cents extra when sent prepaid. Try it six months or a year.



containing a great variety of items, including many good hints and suggestions which we throw into smaller types and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.** Post-Office Money Orders, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. 50 cents extra, if returned by mail. Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

Delivery of Chromos.—We have delivered, at this date, all the Chromos to our subscribers, who have either called for them in person, or who have forwarded payment of postage or transportation if to be sent by mail or express. On one of our advertising pages will be found extracts from a few of the great number of letters that have come to us expressing the delight of the recipients of these beautiful pictures. We would remind those of our subscribers (either to *Hearth and Home* or *American Agriculturist*) who have not yet sent for their Chromos, that if they will remit to us the small amount necessary to pay for packing and transportation, as advertised on second page of cover, the pictures will be promptly forwarded.

"For Information."—Notwithstanding several requests, letters still come to us inclosing 25 cents or fifty cents "for information." We have often asked that only return postage be sent, and those who include more lose 22 cents or 47 cents, as the case may be, as we wish it to be distinctly understood that letters are written as a matter of courtesy, and not for a few cents. We feel much inclined not to answer such letters at all. Please understand that we do not retail information by the 25 or 50 cents' worth, or at any other price.

Mrs. or Miss?—If ladies would sign their names as Mrs. or Miss So-and-So, it would often be of

use to those who receive their letters. It is often the case that a lady's handwriting is not what is called feminine; and there being nothing in the letter to indicate the sex of the writer, it sometimes leads to annoying blunders. We once addressed a letter to "Mr. So-and-So, Dear Sir," and the reply came back, "I am neither a Mr. nor a Dear Sir, but an old woman of 60."

The Prairie Farmer is not only a wide-awake cotemporary, but a courteous. When it sees an article in the *Agriculturist* that it thinks may be of use to its readers, it copies and gives full credit. Of course, this is only common honesty, but so many one-horse papers take our articles and accredit them to "Exchange" or even "Ex.," when they do not appropriate them without even this poor intimation that they are borrowed, that it is worth while to refer them to the example of the "Prairie Farmer."

Ayrshires and Jerseys in Texas.

"W. P. G.," Limestone Co., Texas. There is no reason why either Ayrshire or Jersey cattle should not thrive in Texas as well as elsewhere, unless it be that they do not get proper treatment. The disease by which you say they are affected is not murrain. In the first place, there is no such complaint, the word meaning the same as the word plague, and referring to a state of things in which cattle take sick and die throughout a wide district, under similar circumstances. Murrain, as you use the word, is simply impaction of the manure, or third stomach, with a quantity of hard, dry, indigestible matter, which causes severe inflammation of the bowels and kidneys, resulting in discharges of blood before death, and sometimes ending in fever and general disorganization. It is most probably caused by either feeding in summer on dry, unnutritious, and indigestible fodder, weeds, or coarse stems of grass, with want of water; or by feeding too luxuriously in the spring on young, succulent herbage, after undergoing a course of partial starvation throughout the winter months. If this adverse treatment is remedied, and the cattle cared for judiciously, there will be no difficulty. These sorts of cattle are not suited to picking a living on the prairies at all seasons and in all weathers, as are the natives.

Self-opening Gate.—"A. W." We never yet saw one that we would have if it were put up without cost. But what is the need of closing entrance-gates if there are proper cattle laws? Our own entrance-gate is not closed from the beginning to the end of the year, except now and then to keep in our own animals.

Apple-seed from Pomace.—"A. L. R.," Hanover Co., Va. The seed should be separated before the pomace ferments. The pomace is soaked to facilitate breaking up by beating it, and it is then washed in tubs, the heavier seed sinking, while the fragments of pomace are poured off with the water. Where a large quantity is to be washed, it is done in a long box placed near a stream, from which a continuous flow of water can be had, and is done something after the manner of gold washing.

China Berries.—"Inquirer." The tree "Pride of China" is, botanically, *Melia Azadirach*. We have had no experience in "utilizing" the berries. A decoction of them is said to kill insects on plants, and a writer in a southern paper, quoted by Dr. Porcher, stated that he fed his horses and cows with the berries, mixed with a small portion of corn. We should advise great caution in this matter, as all parts of the plant are medicinally active. Can any of our southern readers advise "Inquirer" what to do with his China berries?

Maine Pomological Society was chartered last winter, and is now organized. Z. A. Gilbert, of Turner, is President; A. L. Simpson, of Bangor, Corresponding Secretary; and George B. Sawyer, of Wiscasset, Recording Secretary. So the good work goes on.

Hydrangea paniculata grandiflora in Wisconsin.—F. A. Woodward writes from Eau Claire: "I notice that you say, *Hydrangea paniculata grandiflora* is, taken all in all, the finest shrub we have." You might add to this that it is perfectly hardy here, having withstood a temperature of 40 degrees below zero uninjured. Perfectly hardy means something more here than at the East. In a collection of some fifty varieties of shrubs the number that have survived the winter is exceedingly few."

Horse with Sore Shoulder.—"H. D.," Madison Co., Iowa. A horse with a sore shoulder should not work by any means. The lump existing is the result of bruises from the collar, which is doubtless too large. It will break in time and discharge matter. It should then be washed with soap and water and a weak

solution of copperas, and will soon heal. It would be folly to start for Colorado or on any other journey with one of the horses in that condition, or until it is entirely healed. With a well-fitting collar, nothing is needed but to wash the horse's shoulders when the collar is taken off with cold water and soap, and scrape the collar free from all dirt, and keep it smooth and hard. Pads are worse than useless, as they make the skin sweat and gall. Salt-water is equally worse than useless, as the salt keeps the skin moist and makes it tender. Cold water is the very best thing to use.

Right and Wrong.—"W. J.," Red City, Mich. It is not within our province to settle questions of conscience for our readers. If you think it wrong to make money by pandering to whims by breeding Jerseys for color, to grow hops for brewers, or rye for distillers, or apples for cider-makers, pray do not do it. These are questions which each one must decide for himself.

Apple of Sodom.—"A. W.," Cecil Co., Md. This is, in some localities, called "Horse Nettle," and is *Solanum Carolinense*, a near relative of the potato, and the worst weed the cultivator has to contend with, the Canada Thistle not excepted. We know of a nursery where the proprietor had to abandon on account of it. There is no "remedy" for this, nor for any other weed of its tenacious character, except persistent work. Do not let a plant go to seed, and cut the shoots off as soon as they appear above the surface. A friend of ours in Delaware, by taking it as soon as it appeared, cleared his grounds of it. If it gets full possession, the question then will be, Is the land worth what it will cost to clear it? Our Maryland nurseryman thought not, and left his place in possession of the weed.

SUNDRY HUMBUGS.—Whatever else may be expanded by heat, the list of humbugs is not. It must not be inferred that humbugging in its various forms is any less active than formerly; but our correspondents are too busy with their farm labors to send us the usual amount of information, circulars, etc.

LOTTERIES.

We have already given our view of lotteries, whether called by their proper names, or disguised under those of Gift Concerts, Distributions, or what not. No matter how plausible the object, or how great the charity for which these are held, the principle is not changed. Some one makes money at the expense of the community, and gives but a small portion of the proceeds to the charitable object under the cover of the name of which the money was obtained. We showed not long ago that it took ten dollars of the people's money to get one into the Kentucky Library. This Kentucky lottery will probably be kept going as long as there can be found any foolish enough to purchase tickets. Its "Third Grand Gift Concert" has been postponed for ninety days. . . . Omaha appears to be especially afflicted with lotteries. Just now it is an Orphan Asylum. The circular setting forth the claims of this is as funny reading.

CHEAP SEWING-MACHINES.

In answer to those who have sent us circulars of various cheap sewing-machines, we can only say that we have not yet seen a Five-Dollar Sewing-Machine that was worth buying. One of these circulars quotes the Scientific American as endorsing its machine. Upon inquiry of the editor of that journal, we find that he knows nothing of the machine in question. There has been so much humbuggery connected with these cheap machines, that we advise great caution in investing in them.

MEDICAL HUMBUGS.

The collection of these presents but little novelty, but the circulars are of interest as showing the recent method of introducing medicines all over the country. The makers of these nostrums send out small parcels to persons for sale at a good profit. The one who receives the medicines deposits a dollar as evidence of good faith, which he is generally willing to do if he can get medicines worth several dollars—when he sells them. Now, a dollar will not only pay the manufacturer for the stuff sent but gives him a profit, even if he gets no further returns; but the one who receives the medicines, having them on hand, will make an effort to sell them, and by the aid of persuasive circulars he is very likely to get rid of them and want more. Some of the

CANCER QUACKS

have another dodge. They send circulars to post-masters, clergymen, etc., setting forth their ability to cure cancer, stating that they charge \$1,000 to \$5,000, more or less, according to the ability of the patient, and offer to the clergyman or post-master, if he will put the cancer quack in communication with persons afflicted with cancer, to give him 25 per cent of all the fees received.

RIVAL HOUSES

spring up among these nostrum dealers. The "N. Y. College of Health" inform us, in setting forth the claims of their "Eye Cups," that Ball is dead, and that others

"are now making an unjust use of a dead man's name to sell the identical instrument that was found defective years ago;" while Dr. J. Ball & Co., in their circular, caution against counterfeiters, and say, "They sometimes go under the name of a 'Collage,' when no such medical college exists in our city." To those disposed to try Eye Caps we say, Don't..... We have also rival "Mountain Herb" medicines, one in New York and the other in Chicago. If obliged to decide between them, we should go for the Chicago "Herb," as that has a circular giving a pathetic account of "How I found Aunt Mary," and it was "Aunt Mary" who found the "Herb." It is all very touching, especially the "religions" part of it..... We are informed that a "medicine" advertised largely from Jersey city is only one of our well known New York dealers in this line with another string to his bow, over in Jersey, and that he sends over for his letters. We shall have to look this up.

ANATOMICAL MUSEUMS.

A Boston subscriber sends us a pamphlet concerning a "Gallery of Anatomy," and asks "Is this quackery?" There are in most large cities one or more "anatomical museums." There are so many who know but little about the structure of their own bodies, in whom there is a strong desire to know more, that these exhibitions are well patronized, especially by the young. Very excellent models of all parts of the human body in health and disease, made in wax or *papier-mache*, may be bought in Paris for a moderate sum. These, with a few skeletons and preparations in alcohol, usually make up the stock of these exhibitions. They may be made instructive or not, as they are managed. So far as our personal knowledge of them goes, they have merely served as a sort of advertisement to those who treat private diseases.

RECIPES FOR FERTILIZERS.

A chap is around in Maryland, and probably elsewhere, selling a recipe for making a fertilizer. The price of the recipe is \$10, and the purchaser binds himself in a penalty of \$500 not to divulge the secret. We have seen one of these recipes, and can not advise any one to invest in such stock. Things that are of real value are not hawked about the country in this manner.

"THE QUEER."

The dealers in counterfeit money are unusually scarce. The unusual efforts of the police, backed by the courts and the city officials, have made dealers in "sawdust" refreshingly scarce at least in New York City. C. Allard has moved West, and dates his taking, confidential letters from Louisiana, Mo.; R. S. Nixon may be found at 34 Amity st.; J. M. Ward & Co., 84 Grand st.

Size of a Bushel.—"Rural." A struck bushel contains 2,150 cubic inches in round numbers (exactly 2,150 $\frac{1}{10}$). Any box or vessel whose length, width, and depth, multiplied together, equals 2,150 inches, holds a bushel. Thus a box 13 inches long, 13 inches wide, and 12 $\frac{3}{4}$ inches deep, contains 2,154 cubic inches, which will be nearly enough correct for home use. A heaped bushel is 2,750 cubic inches in most places, at least charcoal, coal, and lime are everywhere measured by this bushel; and a box or other measure, or a heap or corn-crib needs to have its contents reduced to cubic inches and divided by 2,750 to find the quantity contained in heaped bushels.

Sawdust as a Mulch.—"F. W. W." Sawdust, in decaying, is often infested with fungus, and this has been found injurious to plants. As a mulch for strawberries it is useless, as the fine particles are thrown upon the berries by the rain.

French Stocks.—W. D. Baker, Fayette Co., Pa. A "French stock" is, of necessity, no better than any other stock. Some stocks can be more certainly and more cheaply raised abroad than here, and our nurserymen often find it to their advantage to use imported stocks. If any one has charged you 75 cents to \$1.50 for pear, plum, and quince trees of ordinary nursery size, for the reason that they were worked on French stock, you had next time better buy of some other dealer.

Rose-bugs on Grape-vines.—"M. D. B." The only remedy we know of is to shake them off early in the morning, when they do not fly readily, and catch them in a pan of water.

Sowing Grass and Clover in the Fall.—"B. D." Noll Co., Ohio (and several others). The question of success or failure in sowing timothy and clover immediately after harvest depends on the quality of the ground and the weather. With good, rich soil, grass and clover will take in spite of very dry weather; but with an average amount of rain, they will be sufficiently advanced to resist the winter on moderately good soils. We would, on such ground, sow twelve quarts of timothy and six of clover, harrowing the ground well

before and after sowing. The last harrowing should be light. We, on one occasion, succeeded in getting an excellent stand by sowing, after a crop of wheat was harvested, a bushel of buckwheat with the grass seed, and leaving the buckwheat to be cut down by the frost. It was a protection to the grass both from heat and frost.

Summer-Pruning the Grape.—"M. D. B." We do not know in what sense you use the term "summer-pruning." If you mean the pinching of laterals, it should be continued as long as they push. There should be no other summer-pruning than that which can be done by the thumb and finger.

Steam-plow.—"B. B." Plymouth, N. H. The various experiments in steam-plowing have not, as yet, progressed so far as to warrant any person in saying definitely whether it is to be a success or a failure in this country during this century. That it will succeed and be largely used, we do not doubt—in time—but only in level districts and on large farms. We would recommend no one to experiment except some public-spirited person who could afford to lose \$10,000.

Skin Diseases in Dogs.—Prof. Williams, veterinary surgeon, is quoted by the Medical and Surgical Reporter as saying that skin diseases in dogs require to be treated with great care. Applications that may be used upon other animals with safety will upon the dog produce great disturbance, and even death. For this reason he has abandoned carbolic acid, no matter how dilute, in canine skin diseases, as the effect is sometimes deleterious and fatal. He finds the best application as a stimulant to the skin in dogs to be sublimed sulphur and carbonate of potash, each a drachm, made into an ointment with one ounce of lard.

Agricultural Colleges.—Last month we referred to the trouble that had attended the disposition of the national land grant by the different states. There has long been much dissatisfaction in Illinois, and now the papers talk about a Credit Mobilier as connected with the college—we beg pardon, University—at Champlain.

The Sheep-Tick.—"W. L. L." Washington Co., Pa. The sheep-tick may easily be extirpated by dipping the lambs after the sheep have been sheared. While the wool of the sheep is short, the ticks, to escape the light, go upon the lambs and accumulate in such numbers as to greatly annoy them and interfere with their growth, and often kill them. If the lambs at this time are dipped in a solution of carbolic sheep-dip, the ticks will be killed, and the flock freed for this season from their persecutions. A barrel sawn in halves or a large wash-tub or a watering-trough may be used for the purpose, and a five-pound can of the dip will make fifty gallons of the solution. It will cost \$1.75, and may be had of Orange Judd & Co., 245 Broadway, New York.

Large Hogs.—"H. T. S." Unionville, Ct., sends us the following weights of some Chester Co. hogs as follows: One nearly two years and a half old dressed 818 pounds. One pig nine months and twenty-five days old dressed 510 pounds. This was fed by a neighbor of "H. T. S.," and was sired by the first-mentioned hog.

Value of Coal-ashes.—"A Farmer." Coal-ashes are useful on all soils mechanically, loosening a heavy clay and improving sandy loams. They contain lime, alumina or clay, silica or sand, and sometimes notable quantities of potash and phosphoric acid.

Farming and Hunting.—"A Young Man." Mount Vernon, Ill., who wants to go where manure is not needed (at least at present), and where he can get some hunting to rest him occasionally, should go to Western Kansas, where buffalo and antelope are plentiful, and where he will have an excellent chance for sheep or cattle grazing. There he will have also good air, good water, grass, and game, which he is in search of.

Keeping Milk Sweet in Summer.—"A Subscriber" can only keep his milk sweet in hot weather by the use of ice, or placing the pans in a stream of cold spring water; attention to cleanliness of the pans is absolutely necessary.

Cheese Factories in Kansas.—"Farmers' Club." Farmers in Kansas are acting wisely in looking to the establishment of cheese factories. This is one of the methods of manufacturing produce whereby the raw material which will not bear transportation is changed into an article of much higher value on which the freight bears proportionately very much less. Kansas is very well adapted for dairying and cheese-making, and

farmers' clubs can not do better than gather and spread information upon this subject. The cost of erecting buildings and furnishing them will be somewhat higher than in the East, but an advantage will be gained in the less cost of land, labor, feed, etc., and the consequent less cost of the finished product. The cheese eaten in the West is from New York factories chiefly, and there will be another advantage gained in the saving of the freight now paid on this cheese. The building needed for the milk of 600 cows might be put up for \$3,000, even in Kansas, if of wood. Brick would be preferable, although it would cost possibly 50 per cent more than this. The fittings would cost \$1,500 or \$1,600. The associated principle works as well as any other. The yield of cheese is at the rate of one pound from ten pounds of milk. We believe there is a factory in operation in Kansas; or at least there was, with what success we have not learned. There are over 50 in Illinois, and 30 or 40 in Wisconsin, many of which use the milk of 200 cows or less.

Vine Punctured by Insects.—"J. C." Royalton, O., sends us grape canes which are punctured sometimes for the entire length of a joint so as to split the twig quite down to the pith. Small overlapping eggs are laid in the fissure. The eggs are evidently those of a tree-cricket, probably the Snowy Tree-cricket (*Eucanthus niveus*) which, according to Mr. Riley (in *Am. Entomologist*), is often very destructive in the far West, not only to the grape-vine but fruit trees and even willows. If J. C. hatches out the eggs in a bottle as he proposes he will probably get a small cricket less than an inch long, the male of which is ivory white.

Composting.—"J. J. S." who writes from Columbus, but which one is not stated, asks if he should mix any fertilizer with a compost of manure and manure. No; such a plan is not to be recommended. It would not be what is understood as a compost. That is a mixture of such matters as swamp-muck, leaves, refuse vegetable matter, sods, lime, or plaster together in such a way that fermentation may take place, and the materials become well-rotted and broken down. Stable manure may be used in such a mixture to start the fermentation as a sort of leaven. But the mixture of concentrated fertilizers, which are of themselves sufficiently fine and soluble, with stable manure and other coarse materials is not advisable. It is better to apply them to the soil separately. The bone-dust referred to is probably as it is represented to be. The parties have a reputation for respectability, and that is all that purchasers of commercial fertilizers have to rely upon.

Wool Box.—"J. D." Rock Co., Wis. The wool box described in the *American Agriculturist* of May, 1872, is not patented.

Corns in Horses' Feet.—"A Horseman." Orange Co., N. Y. Corns are not a disease, but result from injuries to the sole of the foot. When the sole is pared thin, a blow from a stone which strikes it injures the sensitive portion of the foot which should be protected by the sole, and an effusion of blood or serum occurs, which presses upon the bruised part and causes lameness. A red or discolored spot is seen. This is supposed to be a corn, and is pared away until it bleeds, and instead of good being done there is much evil. If the shoe is also improperly put on, so that the bearing is unequal, parts of the sole become bruised with the same result. A remedy is to foment the sole with hot water, or to stuff the foot with tow, which should be soaked in hot water repeatedly. If a badly-fitting shoe is the cause, it should be removed before the fomentations are applied, and refitted with an even bearing all round, but especially at the heel, when the lameness will soon disappear. If the shoes were always well fitted, and made long at the heel, and the sole and frog not pared down until no protection to the foot is left, there would be many fewer lame horses.

About Whiffletrees.—"W. H. M." Mountzomery Co., Pa. The length of the whiffletree has no effect whatever on the draft of a team. One of three feet will be equally effective as one four feet or five, and *vice versa*.

Earth-Closet Manure.—"L. B. Y." Meriden, Ct. The doubt thrown upon the value of earth-closet manure by a distinguished agricultural chemist relates to the supposed loss of ammonia in the mixture of refuse and earth after a lapse of time. This view is not accepted by some other chemists whose analyses go to show that the ammonia or nitrogen does not disappear. Practically, however, it is not of much importance, for if some of the ammonia is necessarily lost we can not help it, and must accept what we can save on the principle of "half a loaf rather than no bread."

Sulphur and Salt.—"G. C. A." From its active effect on the system particularly through the skin, it is dangerous to give sulphur in excess to stock in the winter time, without good reason and proper accompanying care. A proper allowance is useful especially to sheep and pigs. Generally one ounce of sulphur to a pound of salt will be sufficient when given regularly in the feed.

How to Raise Turnips.—"W. T. S.," Arkansas. On a light soil a proper preparation for a crop of turnips would be a deep plowing and harrowing as early as possible. When the weeds have started another plowing and harrowing should be given. The land when well mellowed should be laid off in drills 30 inches apart, by taking two furrows with a single plow, or one with a double mold-board plow. In the drill well-rotted stable-manure should be spread at the rate of 10 or 12 loads per acre, or more if it is at hand. The manure is then covered by throwing a furrow from each side on to it. The ground is then harrowed lengthwise of the drill and rolled. The seed is sown either by a turnip-seed drill, or by hand in a light furrow made with the edge of a hoe and covered lightly. The crop should be kept free from weeds. See article in July, 1872, on raising roots.

To Prevent Lice on Sitting Hens.—"C. C.," Fauquier Co., Va. If the nests of the sitting-hens are lined with tansy freshly gathered, they will not be infested with lice. Old nest boxes should be treated to a bath of scalding lye before they are again used. Grease must not be used on the hens or the eggs will not hatch. Lime is not of any use. We have known a nest in a harrel of lime where the eggs lay on the lime, completely infested with lice.

To Empty a Cesspool.—"J. A. G.," Taneytown, Md. The method of emptying a cesspool and utilizing the contents was fully described in the *Agriculturist* for October, 1872.

Geo. M. Patchen.—In reply to "L. D. S.," Darien, Ct., "W. S. B." favors us with the following history of the horse in question. "He was not a thoroughbred; was foaled on the farm of a Mr. Sickles, near Freehold, N. J. He was by Cassius M. Clay, he by old Henry Clay, and his dam was by a brother to Trustee the famous trotter. He was thus a cross of the Bashaw, Messenger, and imported Trustee blood. His last owner was Mr. Waltemire, of New York." This agrees with the history of the first Geo. M. Patchen as given in Wallace's American Trotting Register, in which are mentioned several other Geo. M. Patchens, descendants of the old horse. The old horse died in 1864.

Hand-Mill for Wheat.—"Subscriber," Acushnet. There are hand steel mills which will grind wheat into meal, which, sifted through a fine hair or muslin sieve, will produce a coarse wholesome flour. Probably some of those dealers in implements and seeds who advertise in the *Agriculturist* keep or would procure these mills. Write them.

Composition of "Suint."—"G. P. D.," Delaware Co., Pa. The yolk of wool, which is called *suint*, contains a large portion of potash. It is this alkali which causes the oil of the yolk, in combination with it, to be soluble in water. It has been stated by a French chemist, Prof. Harrez, in a report to the Chamber of Commerce of Verviers, Belgium, that on an average one-third of the fleece is *suint*, and one-third of that is potash. Thus, a fleece of four and a half pounds unwashed would yield half a pound of potash. For this reason the water in which sheep or wool have been washed should not be lost, but should be spread over grass land, or used in any other convenient manner.

Removal of Tumors.—"A Subscriber," Washington Co., Iowa. Written directions would be insufficient to enable one to remove tumors from the body of a horse. A competent surgeon should make the operation when they are "so large as a quart measure." Smaller tumors may often be removed by the application of iodine ointment daily, but so large a one as this must be removed by the knife.

Superphosphate or Plaster for Potatoes.—"T. F.," Cheshire Co., N. H. The apparently inconsistent items in regard to the action of these manures on potatoes, in the *Agriculturist* of April, admits of the following explanation. They were written by two different parties, each of whom has grown the crops they speak of in different states, and on soils of a different character. The crops manured with superphosphate were on a gravelly loam, in which the fertilizer used would be preferable to ammoniacal manures. The soil

was free from lime, and well filled with the remains of a heavy clover sod plowed under. There was, therefore, abundance of ammonia-producing matter in the soil. A part of the field, exactly one acre, produced over 600 measured bushels of Harrison potatoes; and in one spot the yield was very much larger than this average. Our associate who uses ammoniacal manures farms on a clay soil, exactly the soil in which ammonia would develop the lime, potash, and phosphoric acid which are more abundant in such a soil than in gravelly loams. Nothing is more certainly established than that the action of superphosphate, as well as that of ammoniacal manures, depends greatly on the soil in which it is used. Therefore the first thing a farmer has to learn is the character and needs of his soil, and adapt his manures to them.

Potash.—"F. D.," Richmond, Va. Potash, as known in the market, is the product of wood-ashes, which are leached, the lye evaporated to dryness, and the resulting salts melted. It comes to market in broken cakes, which have the shape of the iron kettle in which it was melted. It can be bought at wholesale at \$8.50 per barrel of about 500 pounds. The German salts, kainit, is an impure sulphate of potash; the commercial potash is impure carbonate of potash. Nitrate of potash, or saltpeter, costs too much for its profitable use in our agriculture. The nitrogen from dried blood and flesh is cheaper.

Hiring Grain-bags.—In England, "sack-hiring companies" rent grain-bags for one cent for each bag per week. The bags, or sacks as they are called, are made of very strong material, and hold four bushels. It is only about a dozen years since this system was introduced, but it has already become quite common for farmers to depend almost entirely on hired bags. When they have thrashed a quantity of grain they rent the necessary number of bags, and when the grain is sold the farmer directs the purchaser to return the bags direct to the company. If the grain-dealer or miller sees fit to keep the bags beyond the specified date he has the privilege of doing so, but he, and not the farmer, must pay the company one cent per bag per week for such extra time. We do not see why some such system could not be introduced here. When we consider that a two-bushel bag costs us forty cents, and that a large proportion are in use only a few days in a year, and that loss and deterioration is not less than 30 per cent, it would seem that many farmers would gladly avail themselves of the privilege of hiring bags for a few days.

Five-toed Fowls.—"Subscriber," Gloucester Court-house, Va. Five toes are a blemish or monstrosity in Light Brahmas. The Dorkings and the Houdans are the only breeds in which five toes are admissible.

To Prevent a Roller from Clogging.—"R. G." An iron roller will not clog as much on damp soil as a wooden roller. Your plank roller will be benefited in many respects by saturating it with crude petroleum. It will keep it from shrinking, preserve it from rolling, and lessen the tendency to clog. If you apply all the petroleum that the wood will absorb it will become almost as firm as iron, and will last for many years. But the petroleum needs to be repeatedly applied.

The Land Sales of the Union Pacific R.R. for April, 1873, amount to 11,471 acres, at an average price of \$4.93 per acre. The total sales up to May 1st, 1873, were 114,908 acres.

Frauds on Farmers.—"A Correspondent," Carroll Co., Md., who has paid \$10 to a party in Maryland for a recipe for making "raw-bone phosphate" has been swindled. The mixture is not a raw-bone phosphate, but a much cheaper compound, of which nearly one-half has no phosphoric acid at all. Our advice in this matter is for farmers to purchase no secrets whatever. The old proverb about buying a "pig in a poke" applies emphatically to all such business.

Not a Bad Thing to Have.—"A correspondent in Pennsylvania writes: 'I read the *American Agriculturist* with great satisfaction, and, I think, with some profit. Seven years ago I bought a small farm of 27 acres, none of it quite rich enough to grow even a good crop of cinquefoil. I started to improve it without any capital to speak of, either in money, experience, or labor. I made many mistakes, and met with many discouragements, but have never as yet thought of selling out and moving into town again. I have at present, as a basis for the coming summer's campaign against drouth, bugs, weeds, lazy help, and untimely rains, about 25 good two-horse-loads of manure, manufactured in part from 15 tons of hay, 2 acres of oats, 2 acres of wheat and rye, 1 1/2 acres of corn, about 4,000 lbs. of chan-

dlers' greaves which have been run through a lot of shotes, two tons of bran, and one ton of corn-meal, all composted with sods, sawdust, and whatever trash could be found to mix with it, all of which is to top-dress about four acres of young grass which is to go under for a corn crop two or three years hence.'—We are glad our friend likes agriculture and the *Agriculturist*. He has the right ideas in regard to farming. Good manure and good cultivation are effective weapons. But we should be inclined to spread the manure over a larger area.

Dressing Furs.—"G. B.," New York. It would be advisable for a resident of New York city to have furs dressed by some one who makes a business of it rather than to do it one's self, as home-dressed furs never look so well nor feel so soft in wearing as those done by professional furriers. But for the information of those living where furriers do not abound, we would say that furs may be dressed very passably by sprinkling powdered salt and alum on the flesh side, and doubling them up for a few days, and then rubbing them dry with chalk, and smooth with pumice-stone.

Grade or Thoroughbred Pigs.—A young farmer in Connecticut asks our advice in regard to raising pigs. He proposes to buy a pure-bred Chester white sow and a pure-bred Essex boar.—If he intends to raise pigs for the butcher, this is a capital cross, but if he intends to raise pigs with the intention of selling them for breeding purposes it will not answer. He must raise pure-breds. He thinks breeders ask very high prices for thoroughbred pigs. He will not think so when he has them to sell. It requires much care, patience, and good judgment to raise choice thoroughbred animals of any kind, and, as a rule, breeders do not make exorbitant profits.

Plowing Under Rye for Manure.—"I commenced farming three years ago on three acres of mowing land," writes a young farmer at East Eddington, Me., "and I now have 35 acres, and keep 22 head of cattle, three of them thoroughbred Durham. I take the *American Agriculturist*, and have put a good many of its ideas into practice. I would like to ask you one question: At what stage of growth is it best to plow in winter rye for a green manure crop? I sowed a piece last fall that I propose to plow under. I have brought land up that cat only half a ton of hay to the acre to cut two and a half tons by only plowing under one crop of clover and one crop of buckwheat."—The best time to plow under rye, we should think, would be a few days after it has commenced to ear. But why plow it under for manure? Why not feed it to your cattle as a silage crop, save the manure carefully, and apply it to the land. The cattle would not take out more than ten per cent of the nitrogen, and a still less quantity of phosphoric acid, potash, and other valuable ingredients of manure. The rye would be a useful food, and with your 22 head of cattle on 35 acres you must have a demand for all the food you can raise. You have evidently done well by plowing under clover and buckwheat. You are now in a position to do equally well or better by raising food to be fed out on the farm to stock.

Keeping Pigs without Clover.—A. S. Tipton, Center Co., Pa., who is raising pure-bred Essex pigs and their grades, writes: "Grain is cheaper for my pigs than clover pasture. Will the pigs do as well on the grain if they run in the woods at pleasure? I can not get much bran, but chop corn, rye, and oats together—half corn. Have no roots and no steamer."—The Essex will stand all grain when young and growing as well as any other breed—and better than common pigs; but as they get older you must not feed too much. Still, if they have plenty of exercise, we should apprehend no trouble from pretty liberal feeding. The real point is to feed steadily—not to feed high for a few weeks and then suddenly put them on a starvation diet. We should soak the meal until quite soft, say from 24 to 36 hours, to get it to absorb as much water as possible. Feed it with a large proportion of water—say two quarts of meal to each ten-quart pail of water. This is about the proportion of water in green clover. Let the sows have all they will drink of this slop twice a day. If they get too fat, put only three pints of meal to a pail of water. If not fat enough, put in a little more meal. Let them have all the water they will drink.

How to Kill Canada Thistles.—"T. R. T.," of Winnebago Co., Wisconsin, writes: "I have two small patches of Canada thistles on some land that I bought last fall, but did not know of the thistles until after I had got it, and now I want to ask you how to get rid of them, as I never had anything to do with them before. I plowed the field last fall, and pulled all the roots out of every furrow and laid them on top, but I expect to see plenty of them spring up this coming sum-

mer. I have sown the land to wheat this spring. Will seeding down and pasturing sheep kill the thistles?"—No. A heavy crop of clover, mown in June for hay, before any of the thistles go to seed, and mowing a second time for hay in August, will kill many of them and check the growth of the others. Heavy crops of clover treated in this way, followed by a corn crop or a summer fallow, is a good way to get rid of these pests. But thorough cultivation is necessary. Not a thistle should be allowed to show its head above ground. This will answer "L. D.," Laporte, also.

Arithmetical Problem.—We are obliged to several correspondents, professors, principals, and others who have helped to elucidate the arithmetical problem given in the *Agriculturist* of May last. They arrive at a different result to that given by us, by—to use the words of one—"using a little artifice," and make the result 94 sheep, 1 hog, and 5 cows=100 animals, costing \$100. The original inquiry was simply if the question could be solved by alligation alternate, and by the rule generally in use the solution was as we gave it; but by "using a little artifice," or, in other words, working by analysis, the solution is easily arrived at, as given above. Our correspondents will accept our thanks.

Draining.—"J. W. E.," Westerville, Ohio. The distance on each side of a drain that is acted upon by it, depends on its depth below the surface, and the nature of the soil. On some very heavy clays, drains should be laid four feet deep and thirty-three feet apart; on some porous clays, the surface may be dried by drains sixty-six feet apart, at four feet deep. Again, other soils may be drained at a depth of three feet, while others may need drains six feet or more in places before they are rendered dry. Unless a very strong spring should be cut, main drains of three-inch tile and others of one and a half-inch will be found sufficient.

Water in a Milk-trough.—"J. W. E.," Westerville, Ohio. The water in a milk-trough used for cooling purposes, if ice is added to it, may remain in the trough two days. But as water readily absorbs the impurities in the atmosphere, and as there is a strong animal odor evaporated from the cooling milk, which the water will take up to some extent, it is well to change it as often as may be convenient, even though that be every twelve hours. A running stream is preferable to standing water in every case.

Scales on Chickens' Feet.—"I. M. R.," Sumner Co., Kansas. We have used a weak solution of potash, or "concentrated lye," to wash the scaly legs and feet of fowls with success. But we believe it to be constitutional in the fowls, and have always picked each out for fattening for the table or market. It is always best to weed out all fowls with this tendency, reserving only thrifty ones, and keep them dry and clean.

The Mole-plow.—"E. S.," Allen Co., Ohio. The mole-plow may be made very serviceable in draining wet lands where it is not convenient to use any other method. The plow has a sharp coulter, at the bottom of which is fixed a round, wedge-shaped share, which, being drawn through the soil fourteen or sixteen inches below the surface leaves a sort of mole-burrow shaped channel, through which the water escapes. This sort of plow is also excellent for breaking up an impervious hard-pan, and allowing surface water to escape through it. The best and cheapest plow of this character we know is the Miner Plow, made by R. H. Allen & Co., Water street, New York.

Roots of Trees in the Well.—"J. C. L.," Warsaw, Ind. The presence of many roots of fruit or shade trees in a well is sufficient to cause a bad taste in the water, due to the presence of decomposing vegetable matter. We would go down the well and cut off the roots with a sharp knife every season. Wells should be occasionally cleaned out, especially if they are shallow.

Preparing Ramie.—"A. G. P.," Glyn Co., Ga. A machine for preparing ramie, or China-grass fiber, is a desideratum not yet supplied, at least in this country. We notice a report of its culture and preparation for market in Europe with profit, but do not know by what process it is prepared, unless by hand.

Castration of Colts and other Animals.—"W. R. T.," New Kent, Va. Unless there was something which would prevent or make it inconvenient, we would castrate young stock as early as possible. The younger they are, the more easily they get over the effects of the operation. Lambs and young pigs rarely suffer any inconvenience if operated on before they are weaned. We have seen scores of young lambs

castrated by simply clipping off the scrotum with a pair of sharp sheep-shears when they were a week old lose scarcely a drop of blood, and the wound healed at once. For operating on colts with perfect safety, without loss of blood or need of firing or clamps, an instrument called an *écraseur* is made and used in Philadelphia.

Eggs for Winter Use.—"A. B. M.," Clarion Co., Pa. Eggs can not be put up now for winter use without losing a great many. It is better to wait until September, when the fowls, having had a good run on the stubble fields and grain barns, begin to lay plentifully, and eggs become cheap. Then they may be put down in kegs of strong lime-water, or milk of lime, and kept in a cool place for several months. Or if they are carefully oiled with linseed-oil, and packed in bran or dry oats, they may be preserved in good order.

Abortion in Cows.—"J. B.," Carthage, Mo., writes that he has had several cases of abortion in his herd which could be distinctly traced to the ill-effect of the odor from dead animals. In one case three cows aborted when the only known or supposable reason was the effluvia from three dead cows which were permitted to lie in an adjoining field to be eaten by hogs. Another case occurred, and a dead hen was found beneath the feed-box, under the cow's nose. He says if foul odors will bring about this effect in one case, why may not other foul odors have the same effect in other cases, and a cause little suspected be the origin of the mischief in many mysterious cases?

To Cure a Snake-bitten Horse.—"G. G. T.," Madison Co., Tenn. An old wound from a snake-bite, which now swells and discharges freely, might probably be cured by poulticing with bran or linseed-meal poultices frequently repeated and put on hot. When the wound is well cleaned, it might be washed with a solution of carbolic acid (1 part acid to 100 of water), or with a weak solution of chloride of zinc, and then healed as a common sore by injecting a little compound tincture of benzoin daily.

Rye for Cows.—"J. T. G.," Hanover Co., Va. If the rye is free from ergot, or what is commonly called "spurred rye," which consists of a dark brown fungoid body, an inch or less in length, and an eighth of an inch thick, growing on the ears, it may be safely fed to cows at any time. But as the ergot may be so easily overlooked when only slightly developed, it would be safer not to feed it to cows in calf after it has headed out.

Cholera in Chickens.—"B. F. H.," Washington, Pa. The best "cure" for cholera is prevention. Keep the fowls dry, and their roosts and yards perfectly clean and sweet. Change their food occasionally, and now and then give cooked meal in thick mush, or boiled potatoes mashed with meal. Cholera is very often the reaction from constipation, caused by too much dry grain. A little copperas in the water is a good tonic, and might be given once a week. To cure the disease when it has occurred, we have known alum-water given for drink, and food soaked in alum-water, with pills of bread crumb and red pepper, to be used. But it is much easier to prevent than to cure; at least we have always been successful in preventing it in our flocks.

Oil-cake for Poultry.—"A. C.," Haverhill, Mass. There is no necessity to give oil-cake or any other grain-feed than corn to poultry while that can be procured. With some meat-scrap, pounded oyster-shells or bones, a little chopped cabbage or other vegetables, and corn in moderation, poultry will do very well without any additional feed.

Poultry-farming.—"C. H. G.," Salt Lake city. Where eggs are thirty cents a dozen the year round, and fowls fifty to eighty cents each, it certainly will pay to keep poultry. On ten acres, one thousand fowls might be kept by using five acres alternately, but it would only be through tact and experience that it could be successfully done. It would be safest to commence with one hundred or two hundred, and increase gradually. The feed should be mainly corn, boiled potatoes, chopped cabbage, and meat-scrap, with broken bone and plenty of clean water. If the bones are white-washed monthly, cleaned out weekly, and the roosts greased or oiled once or twice a month, there will be no lice. Lice and filth accompany each other. A hen will raise, on the average, ten chicks, and produce, for sale, five dozen eggs besides, at least.

Lead-pipe.—"J. C. S.," Rose Point, Pa., says in relation to the use of lead pipe that science is a good thing, but it needs to be corrected by experience; and therefore, admitting that the use of lead pipe for conveying drinking water is dangerous scientifically

considered, yet experimentally he has found it to be perfectly harmless. Even a leaden tank for storing drinking water has been found perfectly innocuous by one of his friends, and thus practical experience overcame theoretical prejudice. Nevertheless the use of lead pipe is always dangerous; it is least so when a constant current of water is passing through it. No drinking water should be stored in a leaden tank. And further, while there are certain impurities in some waters which cause them to act less vigorously on the lead than pure water, without knowing whether these are present or not there is a great risk run. The purer the water the more rapidly it dissolves the lead.

When to Water Cattle.—"A Farmer," Grape Island, W. Va. The usual time to water cattle or horses is after feeding in the morning, a little before and after feeding at noon, and before feeding at night. These times are most convenient, and are probably as good as any other time that could be chosen. Copious watering at any one time should be avoided.

Plaster in Stables.—"J. E. M.," sees a statement in the *Agriculturist* that plaster will not fix ammonia unless it is dissolved in water; why then, he asks, is plaster recommended to be scattered in stables and manure-heaps to fix the ammonia? For the reason that stable floors are always wet, and much liquid is in the manure, and the same is true of manure-heaps. Then the plaster scattered is dissolved by the water, which holds much ammonia in solution, and decomposed, and sulphate of ammonia is formed, which is not volatile. Manure heaps should be kept moist that the solution and fixing of the ammonia, which is always forming during fermentation, may be completely effected.

Benefits of Snow.—"Subscriber" asks in what way snow is beneficial to agriculture. It acts as a protection to meadows and wheat fields against severe cold and sudden changes of temperature. It also contains a larger proportion of ammonia than rain-water usually does, and thus, by furnishing a supply of this valuable fertilizer, has gained the name of the "poor man's manure;" but it is equally true that it may have also gained this name for the reason that the man who relies upon it as the sole source of his manure will always be a poor man.

Thumps.—"G. G. T.," Madison Co., Tenn. Thumps is caused by spasms of the diaphragm, or membrane which separates the abdomen from the chest. It is the result of over-driving or over-exertion. It may sometimes be relieved by placing the horse in an airy, cool place, and giving him a copious drink of cold water. We know of no permanent cure.

Composting "Salt-fish."—"T. J. J.," Bath Co., —, says he has read a good deal about composting fresh fish, and now would like to know how to compost salt-fish, which he can buy at six dollars per ton.—Is salted fish here meant, or salt-water fish as distinguished from fresh-water fish? We can not understand how salted fish can be for sale at that price. However, there is no difference in the method of composting whichever it may be. It should be mixed with earth in layers until rotted, and then spread upon the plowed soil and harrowed in. Such manure should be kept near the surface.

Thomas Harrow.—"C. W. M.," Springfield, Vt., asks if the Thomas Harrow is fitted for use amongst stones and rocks.—By no means. The teeth are very light, and are not adapted to such rough usage. But why not get rid of those stones, at least the loose ones? In plowing stony soil, if the stones are all thrown into the furrow and covered by the next furrow slice, this harrow, or any with sloping teeth, will not bring them up again to the surface; and no stone that can not thus be covered should be allowed to lie upon the surface even in Vermont.

Loss of Milk.—"N. S.," Andover, Mass., has a cow that had an inflamed udder at last calving, and since then two teats have been dry. He would know whether or not it is worth while to try her once more with another calf, or slaughter her. It is quite possible that the cow, with good care and attention, may come out all right next time. She should be watched closely, and if the udder becomes hot or hard, it should be bathed in warm water and rubbed gently with the hand. The cow should be kept warm, and a pound of epsom salts, with one ounce of powdered ginger, be given in slightly warm water, with a teaspoonful of molasses in it. If the trouble again becomes serious, the udder should be rubbed twice a day with one ounce of tincture of iodine and one ounce of soap-liniment, mixed. If this should

be the result, however, the cow's period of usefulness may be considered as passed, and she may be turned into beef. The milk from an inflamed udder should not be used even by calves or pigs.

Value of Cotton-seed as Manure.

—“E. O. N.” Tracy City, Tenn., asks, (1st.) What is the value of cotton-seed, when well rotted, as manure? (2d.) Is the decorticated seed cake worth more as a fertilizer than the seed? (3d.) Why are the above values assumed, the values to be given in comparison with Guanape guano at \$90 per ton?—*Replies:* (1st.) The value of cotton-seed consists principally of the nitrogen and phosphoric acid of the kernel, the husk being of no account to speak of, excepting for its potash and a little phosphoric acid. It may therefore be discarded from the calculation. If the husk comprises half the weight of the seed—which is not far from the mark—there will then be in a ton of cotton-seed, according to the analyses of Prof. Johnson, and Prof. Voelcker of London, about 67.6 pounds of nitrogen (equal to 81.5 pounds of ammoniac), and 29 pounds of phosphoric acid, which will give a value of \$14.38, as shown in the table below. (2d.) The cotton-seed cake being free from the husk, will contain just double the above quantities of fertilizing matters, and bear double the above value—equal to \$28.75 per ton; the loss of oil in pressing the seed does not reduce its value in this respect. (3d.) The above values are assumed from the known constituents of the cotton-seed and the guano, and from the standard value set upon the ammonia or the nitrogen from which it is formed, and the phosphoric acid in the market, on which the market prices of the fertilizers are based. The following table sets the matter forth as clearly as may be, viz.:

Composition of Cotton-seed Cake:

Nitrogen, 6.76 per cent = 135 lbs. per ton, @ 17c.	\$22.95
Phos. acid, 2.90 per cent = 58 lbs. per ton, @ 10c.	5.80
	\$28.75

Composition of pure Guanape Guano (as per analysis recently made in New York).

Nitrogen, 10.03 per cent = 200 lbs. per ton, @ 17c.	\$34.00
Phos. acid, 16.3 per cent = 326 lbs. per ton, @ 10c.	32.60
	\$66.60

These values are the intrinsic values of the two articles for their nitrogen and phosphoric acid alone. The market value of the guano above described is \$75 per ton in New York. If the value is to be estimated at \$90 per ton, a proportionate addition should be made to the value of the cotton-seed.

Making Manure.—“J. C. C.” Knoxville,

Tenn., writes that he beds his cattle heavily with leaves, allowing them to remain in the stable until they become saturated with the liquid manure, when the whole is removed to the manure shed. By doing this he saves all the liquid. He thinks this plan open to the charge of being slipshod, but it makes the best manure. This plan is far from being a slipshod plan; it is followed by eminent farmers who, by using abundant bedding, clean out their feeding-stalls at the end of the season only, when the manure is in the best condition.

Alsike Clover.—“J. C. McL.” Plymouth,

Iowa. So far as our experience has gone, alsike clover is preferable to red clover only on wet soils, where the red clover is apt to be heaved out by the frost. On such soils it succeeds well, and makes a good crop of hay. This, we believe, is consistent with the experience of others. It can not be cut a second time for seed; if grown for seed, the hay is sacrificed.

Consumption of Food.—“J. C. R.”

Randolph Co., Ill. As a general rule, cattle, horses, and sheep will eat three per cent of their live weight of fodder per day—that is very near their own weight every month. But there is a vast difference amongst them as to the profitable results of their consumption of food. Some will merely keep alive, while others will increase in weight and size, or produce milk in a much greater proportion for the food consumed.

Suckering Corn.—“A. B.” Mansfield,

Ohio. We would certainly advise any farmer to remove suckers from corn, especially if he has planted a variety that suckers profusely. The suckers, if used for fodder for cows, or feed for hogs, will pay for the trouble, and the corn crop is benefited.

Four Months in Texas.—“R. R.”

Adams Co., Ill., writes that he spent four months of the past winter in Texas. There he saw a rich prairie soil which produces wheat, corn, oats, and cotton, and all the

time during January and February the plows were running. Land is there \$3 to \$5 per acre, and farms \$10 to \$25. The wild grasses are disappearing from over-pasturing with cattle and horses, hundreds of which he saw dead upon the prairies, starved for want of feed. As usual in new countries, old things are passing away, and new methods of making a living must be followed, for cattle raising is fast playing out in Central Texas.

“Do Good and Make Money.”—A

fine opportunity to secure both these desirable results is offered by the publishers of *Hearth and Home* and *American Agriculturist*. They have established an Agency Department, and all suitable persons may find a capital and paying business in an Agency for both the valuable papers above mentioned, with their beautiful Chromes for each subscriber. For particulars, address Frank B. Van Sielen, Manager of Agency Department of Orange Judd & Co., 245 Broadway, New York.

Fourteen Weeks in Human

Physiology, by J. Dorman Steele. Pp. 233. A. S. Barnes & Co. This little volume comes to swell the list of those existing upon the same subject. It is by a teacher of repute, and by him is intended for school use. Altogether, we like it, notwithstanding some rather loose statements which here and there occur. The mechanical execution is good, and the introduction of some figures, on which more than usual care has been bestowed, illustrative of the bones, muscles, blood-vessels, etc., is a special feature, well calculated to give clear ideas on these important subdivisions.

Turnips amongst Corn.—“W. S.”

Binghamton, N. Y. White turnips may be sown amongst corn, without injury to the crop, any time up to August 1st. The last time of cultivating the corn, a pound of seed may be scattered along the rows on the loose soil. If a rain soon follows, no harrowing is necessary; if not, a brush should be drawn up and down the rows. Ruta-bagas may be sown in the same manner, not later than the 10th or 12th of July.

Bog-spavin.—“W. C. M. B.” Washington

Co., Mo. Bog-spavin is an enlargement at the hock-joint of the horse, and is a disease of the joint itself. Blood-spavin, which is also called thoroughpin, is an obstruction of the vein by the swelling caused by the bog-spavin, and therefore these often exist together. But they are two different things. Bog-spavin rarely causes lameness, and, being often hereditary, is frequently incurable. The only treatment is by applications of iodine ointment, once in the week, with lard every day; or by rubbing the joint with a liniment of two ounces of olive oil, one ounce of oil of turpentine, and one ounce of creosote, every second day. The feed should be of the best character, as spavined horses are never in complete health.

Value of Peat-ashes.—“H. B.” Port

Jervis, N. Y. Peat-ashes are a valuable fertilizer; and if the peat is formed by the remains of woody plants, and is heavy and fibrous in texture, the ashes are worth more than the soft, pasty peat resulting from mosses and succulent plants. Experiments recently made in France showed that oats, wheat, and strawberry plants grew vigorously and bore heavily when planted and grown in a soil consisting largely of ashes of peat.

The Force of the Wind.—“H. Y.”

Baxter City, Kansas. The variation in the pressure of the wind in pounds, per square foot, is as the square of the velocity. Thus a wind moving five miles an hour exerts a pressure of .123 of a pound per square foot, while a wind at ten miles an hour, which is twice the rate, exerts four times the pressure, or .492 of a pound to the foot. The rule for finding the force of the wind is to multiply the surface, in feet, by the square of the velocity in feet, and the product by .002358. The result is pressure in pounds.

Steaming Food.—“A. P. S.” Newark,

N. J.—When it is said that it will not pay to steam food for less than twenty head of cattle, what is meant is that it will not pay to provide apparatus specially for less than that number. If a person has the boiler and steam-pipes, and uses them for other purposes, he may use them for this profitably for five or six head.

Wheat and Chess.—“B. F. B.” If a

man should shut up a dog in his barn at night, and in the morning find a cat there instead, he would not be likely to jump at the conclusion that the dog had changed into a cat. He would know that there must have been a good reason for the substitution, even if he never found out what it was. So when chess grows in a wheat-field there is an equally good reason for its appearance, or for that

of any other weed that may manifest itself, without supposing that an impossibility equal to the change of a dog into a cat had occurred.

Folding Sheep.—Mrs. “P. L.” Charlotte,

N. C. In the *Agriculturist* of November, 1871, the method of making hurdles for folding sheep was described and illustrated. The folding consists in dividing off a part of a field of clover or roots, by erecting the hurdles across it, and, as the crop is fed off, removing the hurdles further back, and so pasturing the whole field by small portions at a time.

Warts on Cows' Teats.—Mrs. “S. E.

H.” Shawnee Co., Kan., can remove warts on cows teats, if they are small, by clipping them off with a pair of sharp shears, and touching the spot with a little powdered copperas to stop bleeding. If they are too large to do this easily, they should be wetted daily and then rubbed carefully with a stick of Lunar Caustic (Nitrate of Silver).

Potatoes for Cows.—“Subscriber.”

Small potatoes, if boiled and fed when nearly cold with some bran or meal, are an excellent food for cows. Fed raw, they sometimes produce irritation or looseness of the bowels, which considerably reduces the flow of milk.

Drawing Manure.—“Subscriber.”

Manure may be drawn and spread at any time, excepting on frozen ground, or where it will be washed from the surface; but it should never be left in heaps in the field at any season of the year. See “Ogden Farm Papers” in March *Agriculturist*.

A Cord of Manure is 128 cubic feet;

a wagon box 10 feet long, 3 feet 2½ inches wide, and one foot deep holds a quarter of a cord.

Sowing Grass Seed.—“Blue Grass.”

When grass seed is to be sown without any sheltering crop, it is necessary to prepare the ground by plowing and careful harrowing, then to sow the seed, and harrow or brush it in with a brush or light harrow—as early in the spring as possible.

Ground-Sumac Waste.—“E. M. H.”

Great Falls, N. H. The value of ground-sumac waste from a tannery would be, when it is rotted, about equal to rotten leaves. It would make a valuable material to bed cattle with, and add to the bulk of a manure pile, and for this purpose it ought to be worth at least two dollars a cord.

Soil for Barley.—“W. H.” Vernon Co.,

Wis. Barley will not thrive on the rich, black loam of a river-bottom. A rich, sandy, upland loam is the most suitable soil, and on such a soil there is seldom any trouble about want of stiffness in the straw. The best application to stiffen the straw is salt, at the rate of three or four bushels per acre, sown in May.

Waste Salt.—“J. B.” Port Richmond.

Waste salt, or salt water of any kind, may be profitably applied to an asparagus-bed, at the rate of a peck of salt to the square rod of ground. If there is no asparagus-bed—but there ought to be in every farmer's garden—or the salt is in too great a quantity to be thus used, it may be scattered over a meadow or added to the manure pile.

A New Subscriber's Questions.—

Directions for reducing bones, preparing blood and spoiled fish for manure, and the value of tan-bark, have all been fully given in the *Agriculturist* for 1873, which can be had for \$1.50. It is impracticable for us to repeat what has been told so recently in our columns.

Patent Hatching-Boxes.—“J. F.”

Peapack, N. J. Our advice to any person who desires to patent an artificial hatching apparatus, which he has invented, is simply “Don't.” We would never advise any one to buy it, even if it should succeed perfectly. There are a great many such inventions now lying dormant.

What is a Globule?—“N. O.” Omaha,

Nebraska, asks what is the meaning of the prescriptions in “Herbert's Hints to Horsekeepers,” in which “drops, or globules,” are ordered to be given of certain substances, such as worm-seed. How can he get drops, or globules, of a seed or powder? The remedies given in that work are “homeopathic,” and the terms given are such as are used by practitioners of that name. Persons who do not desire to follow the homeopathic methods, or who are unacquainted with them, had better use another guide than Herbert. McClure's method of treating horses, cattle, and sheep is a useful hand-book.

The Northern Pacific Railroad.

We learn that on June 4th the track of the Northern Pacific Railroad reached the Missouri River at Bismarck, Dakota, and the entire division of 450 miles from Duluth to Bismarck is open to business. Connection is made here with the navigation of the upper and lower Missouri. A line of steamers is established between this point and Fort Benton, in Western Montana, and shipments of both government and private freight are being made by this new route to the North-west. The railroad surveying expedition, with a military escort under command of General Stanley, was to start west June 16th, with the intention of making a final and definite location of the line of the road from the crossing of the Missouri to the crossing of the Yellowstone, and along that river to Central Montana, this being the only portion of the route not yet determined.

The Value of the Agriculturist.

Mr. R. R. Ashbury, of the Alabama Institution for the Deaf, Dumb, and Blind, writing to Ogden Farm, says: "It may be some gratification to you to know how much I feel indebted to you for the Ogden Farm papers. In them my attention was first directed to the Jerseys, and I soon became convinced that they were the cattle for the scant pastures of this country. Favorable circumstances enabled me to buy three from Mr. Cary, and afterward I got a bull of his raising. Now, I have got back all the money I had paid out, and \$127 besides, and have on hand five full bloods, two of them imported. I have benefitted at least \$1,200 by your papers in the past four years."

Believes in Soiling.—"J. B. T." writes from South Amboy, N. J.: "I have been much interested in the soiling articles. I am so pleased with my own experiment, I can not refrain from sending sample of common clover cut this 26th of May—thirty-three and a half inches to the head. This, considering late spring, is good at this date. I am soiling seventeen cows. Am much pleased with the system. I feed corn-meal, 100 lbs. mixed with 50 lbs. of bran, made in a slop, six hours before feeding. In hot weather this gets sour."

Grafting.—"F. L. E.," Hawley, Mass., wishes to know if plum, pear, and cherry scions will grow if grafted into an apple-tree. The plum and cherry are too unlike to be grafted upon the apple. The pear, however, being more nearly related, will form a union with the apple stock, but this kind of grafting has not been found profitable or reliable.

Pickles, Again.—Every summer brings us a series of inquiries in regard to the making of pickles such as are sold in bottles. The pickling and preserving business is a regular trade, as is that of the confectioner or baker, and has to be learned. It is also a business that can not be started successfully upon a small scale, as one in doing so would have to compete with immense factories that employ many skilled hands and take the produce of a hundred farms. As to the frequent question as to the kind of vinegar used in the bottled pickles—it is whisky vinegar, though commonly called "white wine." Being free from the coloring matter of the cider, pickles put up in this vinegar are more pleasing to the eye, but no better, nor even so good, to the taste than those preserved in cider vinegar. Those who live where they can not readily send their cucumbers to a pickle factory should grow some other crop. Pickle cultivation is profitable only where there is a near market.

To the Boys and Girls.

THE MENAGERIE PRIZES.

I have finished reading your essays for the menagerie prizes, and no small job has it been. I wonder if it is possible to state a thing so plainly that some one will not misunderstand it. I stated "each article must give full name and age," yet here are some articles with initials only, and some with initials for the first name. If one writes J. Smith, how am I to know whether it is intended for Jane or James Smith?

Then I said as plainly as could be: "There are fifteen of these words, and these form the subject of the prize. The prizes will be given—five to boys and five to girls—for the best articles written upon these words." Then I enumerated the words. It seems difficult to understand how any one after this could write an article upon one, two, or four of these words, as some did. Another time I will try if it is not possible to state the conditions in such a way that it will be impossible for any one to misapprehend if they try to.

There have been two quite curious mistakes fallen into by both boys and girls. Word No. 6 was *Locomotive ap-*

pendages. Of course, these words in the prize announcement had reference to their use in the menagerie article from which they were taken. Yet, to my astonishment, several named the parts to a *locomotive engine* (3), and one put down a horse as a locomotive appendage to a canal-boat. Then several showed a queer misapprehension of the 9th question, "*San Diego to Monterey*—upon what ocean did I sail, and in what direction?" Some took me down the coast of Mexico, and gave me a land route across from Mazatlan or Acapulco to Monterey in Nacvo Leon, Eastern Mexico; while others kindly sent me round Cape Horn and across the Caribbean Sea and Gulf of Mexico, where they left me, there being no steamboat communication with this Monterey. It is strange that those who knew about Monterey in Mexico should not know about the more important seaport of that name in the United States.

With the exception of these queer blunders, the answers sent have been remarkably good. Indeed, I do not think I have had in any prize competition so much difficulty in selecting the best. There is one unpleasant thing in the awarding of prizes—that is, the feeling that I must leave out those who have worked just as hard as those to whom they are awarded. I have, with the permission of the publishers, increased the number of prizes, for both boys and girls, from the five offered to eight, and this does not take in all that I would like to include. Those who are not successful will have a chance to try again at some other competition.

I am very glad to notice how many of the boys and girls wrote that they should be amply repaid for their labor by the information they had gained in working up their articles. That is the right view to take of it. This has been a very useful exercise, and I hope to give you more quite as instructive. THE DOCTOR.

BOYS' PRIZES.

The First Prize of a Dictionary to Geo. A. Bentley, Eyota, Mich. The other prizes, books, to G. Alfred Tytzer, Wakefield, Mass.; E. V. Aldridge, Daggett's Mills, Pa.; J. Edward Bangs, New Rutland, Ill.; Wm. Henry Doel, Jr., Chester, Ont.; A. M. Knowlton, Westboro, Mass.; Chas. K. Swartz, Williamsport, Pa.; Edmund C. Hill, Allentown, Pa.

GIRLS' PRIZES.

First Prize of a Dictionary to Nellie B. Nest, Washington Heights, N. Y. Prizes of books to Matty Barry, Barryville, Iowa; Lena S. Goodwin, Greenwich, N. J.; Amy V. Wright, Springfield, Mo.; Mary A. E. Walsh, Jerusalem Mills P. O., Md.; Mattie B. Rucker, Wapella, Ill.; Grace D. Percival, Savannah, O.; Mattie Muncey, Bristol, Pa.

Please Notice.—Those who are entitled to prizes other than Dictionaries will be allowed to select any book in the regular trade that retails for two dollars or less. They will please indicate their choice before July 10th. To those who fail to make known their requests The Doctor will send such books as he thinks suitable.

Bee Notes.—Advice to Beginners.

BY M. QUINBY.

Had I known that the early yield of honey would be as extensive as it has been, I should have said more of the Extractor in the June number. Very many stocks, in consequence of cold, became largely reduced in numbers, and had not maturing brood to replace the old bees that are continually dying off. Stocks of very moderate strength accumulated honey very fast, and filled the cells that should be occupied with brood as soon as there were bees to keep it warm. When the honey obtained is just about what the bees would use in nursing the brood, the queen is not limited for room to deposit eggs as fast as it can be protected. Hives that now (June 1st) have honey already sufficient for winter, and consequently a small place for rearing brood, will be apt to remain nearly stationary throughout the summer. We have recently discovered a remedy for this state of things. We can easily comprehend that if these brood-combs can be emptied of their honey and returned to the bees, they will refill them with more brood as well as honey. The bees will accumulate until there are enough to work in boxes. But with the old box-hive we can not work in this way. With most movable hives with combs there is no difficulty. Some time in the middle of the day, when the bees are engaged, open the hive and lift out a comb from the outside; hold it over the other combs, and give it two or three vertical and sudden shakes or jerks, which will dislodge most of the bees. With the feather end of a goose or turkey-quill, or something similar, brush off the remainder. Then, with a sharp knife—we have them made crooked for the purpose, with both edges sharp—cut off all the sealed cells, and put the frame in the extractor. Four are usually taken at once.

Extractors are made of different sizes, according to the dimensions of the comb. But, as the largest will empty the smallest combs, and the small sizes will not empty the large ones, it is best to get a machine adapted to all. The principle of all is the same. The honey is thrown out by centrifugal force. I will endeavor to describe the one I consider the best adapted. A can, made of heavy tin, two feet diameter, the same in depth, will be about right. This catches and holds the honey as it is thrown out. A frame is made for the inside—iron is better than wood. Let the pieces be 23 inches long, and cross each



Fig. 1.—CROSS-BARS.

other in the middle, with a hole through the center, as in fig. 1. One frame is required for the bottom, and one for the top. Connect with a wooden strip on each outer end, and you have a frame like that in fig. 2. The bottom cross-piece has additional pieces to help steady the comb. Tinned wire-cloth, 14-inch mesh, 18 or 20 inches wide, is put around the outside and held by nails. Through the center is put a half-inch round iron rod on which it revolves; it can be keyed fast if it is wished to have the rod turn. The bottom end can be secured by a small wooden bar across the bottom. The top end in the same way, with the bar above the top. On the upper side of the upper cross-frame are means attached to give the rotary motion, if geared to increase the motion. We have it geared like the old fanning-mill, with cog-wheel. Others use a strap and small pulley to increase the motion. Others still have no gearing, and get only one turn of the cylinder to one of the arm, which makes faster turning necessary. There are several minor points about it that will suggest themselves to a man of ordi-

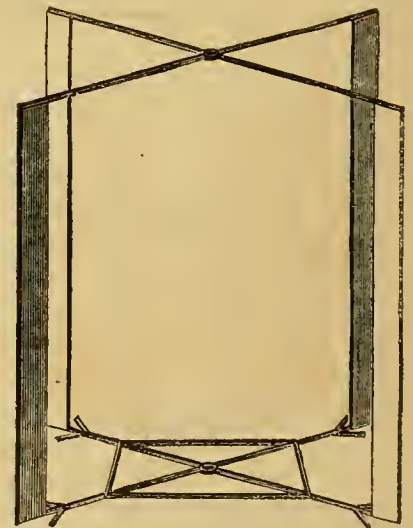


Fig. 2.—FRAME OF EXTRACTOR.

ary ingenuity; viz., a hole through the bottom of the can to draw off the honey; legs under the bottom; a crank at the top to turn it with; how to fasten the small wheel to the cross-piece, fastening the crank on, etc.

When all is ready, set in the combs, and lean them against the inside of the wire cloth. Turn it just fast enough to throw out the honey. A little experience will soon decide that. Then reverse the comb and empty the other side, when it can be returned to the hive. If there should be unsealed brood in the combs, and any is thrown out, it indicates that you have turned too fast. The warmer the weather, the slower the turning should be. No bee-bread or pollen is thrown out in any case, and the honey thus obtained is as pure as the purest box-honey. It has been sent to market in fruit-jars or cans, pints, quarts, half-gallons, small tin cans of 10 and 20 lbs., firkins of 40 and 75 lbs., and barrels of 4 and 500 lbs. The best way is yet undecided. If kept in wooden vessels for the summer, they should be of a kind that would impart no unpleasant flavor. It should be kept in a dry atmosphere; and could the vessel be full, and sealed

perfectly tight, it might not become candied. If every one sending this honey to market would seal it, and send an affidavit that it was not adulterated in any way, it would do much towards its reputation for pure honey. Its remarkable whiteness often makes buyers doubtful.

The boxes in the hive described last month can be examined at any time by just moving the sides, and not allowing a bee to fly. Do not wait for every cell to be sealed, as there will be a few scattered ones uncapped for a month. Take off all as soon as the general smooth surface of all the combs is sealed over. The quicker

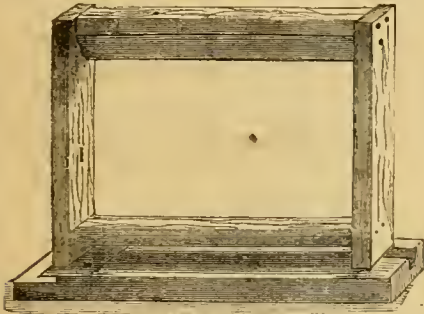


Fig. 3.—MANNER OF SECURING FRAMES.

boxes are filled, the finer the combs appear. If left only a few days after being sealed, the bees will, by running over it, soil the pure, white surface. The honey, of course, is just as pure, but the yellow tinge added makes it just a little less attractive in market or on the table at home. If a full box that has been quickly filled is removed at once, and replaced by an empty one, a gain of one or more might be the result. If bees are getting honey at the time boxes are taken there is but little danger of robbing, and they may be set near the hive for the bees to leave them, allowing the young bees just hatched to creep to the entrance. Do not let the hot sun shine on the boxes at any time. The best time to market honey is usually October. To keep it through the hot weather, put it, 1st, where it is dry; 2d, dark; 3d, cool; 4th, where it will not be stolen.

The methods of queen-rearing will have to be deferred until another month.

[The materials for illustrating the hive described last month did not reach us in time for the engravings to ac-

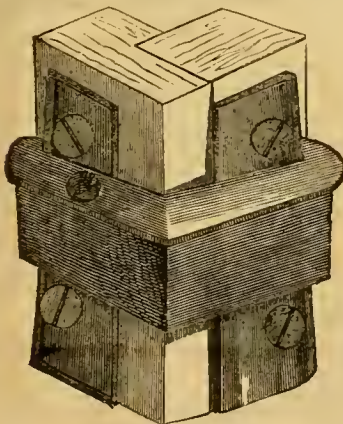


Fig. 4.—CLAMP FOR FASTENING COVER.

company the article; we give them here: Figure 3 shows the manner in which the frames are held in an upright position by means of a bent piece of hoop-iron attached to the lower part of one end of each frame; this hooks into a flat piece of similar iron fastened to the bottom board. This engraving is much out of proportion, it having been drawn from a small model made of parts of the usual size. Its object is solely to show the manner of supporting the frames. The clasp or clamp for fastening together the side of the cover of the hive is shown in fig. 4. This is a simple and efficient unpatented invention of Mr. Quinby's, and we presume he furnishes them on application.—Ed.]

Ogden Farm Papers.—No. 41.

We receive ample evidence that the Jersey cow is well adapted to the Southern soil and climate. Mr. J. H. Freeman, of Jackson, Tenn., recently wrote: "After three days' experiment with 'Belle of Ogden Farm' as a milker, I give you the following result:

May 10.—Morning, 16 lbs.; evening, 13 lbs.=29 lbs.
May 11.—Morning, 15 lbs.; evening, 13½ lbs.=28½ lbs.
May 12.—Morning, 15½ lbs.; evening, 13½ lbs.=29 lbs.

Total in three days.....86½ lbs.
(About fourteen quarts per day.)

The calf was in each instance allowed to take what it wanted. I would state, however, that the calf, while hearty and vigorous, does not seem to take as much milk as other calves of same age. I hope you may have a dozen heifers as good milkers as this one, but can't say I am sorry you sold her. No amount of money can tempt me to sell her."

"Belle of Ogden Farm" was dropped January 19th, 1871, and was consequently less than 28 months old when this experiment was made. The calf (her first one) was dropped April 15th, 1873, and was twenty-six days old when the experiment in question was made.

A correspondent writes: "I see that you have renewed your complaints of abortion among your cows. By your writings, it seems you feed steamed corn-fodder. If you trace the matter up, I think you will find that the abortions are produced by the fungus growth (smut) on the corn-fodder. Experience has taught me that all fungus growth on vegetables—ergot of rye taking the lead—are productive of abortion in animals. *Fungus, high feeding, a great tension of the milking secretions, are all existing causes to abortion. I have known abortions to be produced in mares by the fungus on oat-straw.* The large-growing corn is more apt to have fungus than the kinds that produce a smaller stalk, and high manuring produces it also. This is one of the things to be overcome in high manuring and in forced vegetable growth. The greater the overgrowth of the plant the more liable to disease. The only remedy I can suggest about fungus in corn-fodder is to go through the field before cutting, and select the stalks that have fungus and cut them down. Whether wetting or soaking feed with fungus dust on it will destroy it or not, I can not say, but, chemically speaking, I think its effects are unchanged by the wetting or steaming process. Hoping this may be of some benefit to you, and the means of preventing abortions among animals belonging to others, I remain," etc., etc. "P. S.—I have known clubbing cows on the back with a club to produce abortion. I always keep a leather whip or two about the stables. From what I can learn, fungus produces nausea and contracts the uterus. I suppose there is something among the drugs (perhaps whisky) that would antidote the effect of fungus."

There! This is a copy of a well-meant letter, from a man who knows a good deal more about some things than he will when he shall have extended his sources of knowledge by further study and observation. I am glad to have received it, and congratulate him on having written it. It is a step in the path of speculation and investigation that can not fail to lead to good results if faithfully continued. All such efforts help to make farmers more intelligent and more useful. At the same time, it is only a step, and the path is beset with difficulties that are not now foreseen. The causes of abortion in cows lie in the distant horizon, and no one has yet gone far enough to find them. Examining this letter in the light of my own experience, I find: (1) That only a small percentage of our cows have aborted while on corn-fodder. (2) Not nearly all of them have aborted on steamed fodder. (3) The first case we ever had was in a stable where only long hay (and of

good quality) was fed. (4) Quite a number were young heifers with their first calves, and there had never been the least stimulation of the lacteal secretion—had been no lacteal secretion at all. (5) We have had at least as many cases where we have fed very moderately as where we have fed abundantly. (6) Small-growing corn produces often more fungus than that of rauer growth. (7) It is at least "not proven" that high manuring (which is necessary to a vigorous growth of corn) is conducive to the production of fungus.

And these seven findings show that my correspondent is further from a solution of the question than he fancies. Whether corn-smut has the effect he suggests I do not know. It is *established* that the ergot of rye conduces to abortion in the human subject. It is *inferred* (and with much plausibility) that it has the same effect on the cow. Beyond this, so far as I have been able to learn, we can make no positive assertion. I have never known of a case of nausea in a cow, and do not know what its effects would be. I did not suppose them to be subject to any "retching" that could produce a contraction of the uterus. If corn-smut has the same effect as ergot, surely its treatment for some hours with live steam ought to destroy it. At all events, this process is not to be classed with any mere wetting. The suggestion about clubbing cows over the back does not apply to any case within my knowledge. I would as soon think of shooting a cow, and done with it. Neither do I think that a "leather whip" is a proper article of furniture for a cow-stable. Under no circumstances should a cow or a heifer be touched or even threatened with a whip, or in any other way abused or frightened. I have had occasional abortions traceable to injuries received from other cows, but this is very different from and much less serious than those causes about the origin of which, as Lord Dundreary says, "no fellow can find out"—those mysterious and apparently contagious abortions among a herd of cows kept under precisely the same conditions that have for years before maintained a perfect state of health.

The New York State Agricultural Society has made a very strenuous effort to learn something about this matter of abortion, and employed a very competent committee to examine into the subject. Their investigations extended through the years 1867, '68, and '69, and covered every conceivable class of causes which might, directly or indirectly produce the disease. The result of all their labors is practically *nil*. They were unable to form any theory which could be made to account for the facts that came under their notice. Conditions which attended frequent abortion in one case were equally marked in others where there was no abortion at all. Even ergot, which seemed a probable cause, was not convicted of guilt. Dr. Carmalt (the Commissioner of 1869) says in the appendix of his report: "Your Commissioner has been unable, after a careful examination, to establish any constant relation between the amount of ergot and the frequency of abortion, but the latter occurs irrespective of the amount of ergot in the grasses constituting the hay."

The subject is of the utmost importance, and can not be too carefully studied by all who have the care of cows—but the investigations concerning it have been carried much too far for it to receive material help from individual farmers who jump at conclusions which have long ago been proved fallacious. We know much less of abortion than we do of the potato-rot, and we

are at least as far from a remedy. The most valuable suggestion about it that can now be made is that the most watchful care should be exercised not to allow a cow to abort in the presence, nor within sight, smell, or hearing of other pregnant animals, and to keep her isolated for at least two weeks afterward. There is always some indication about the udder and vulva of the approaching trouble.

In the above, I trust that there is no sugges-

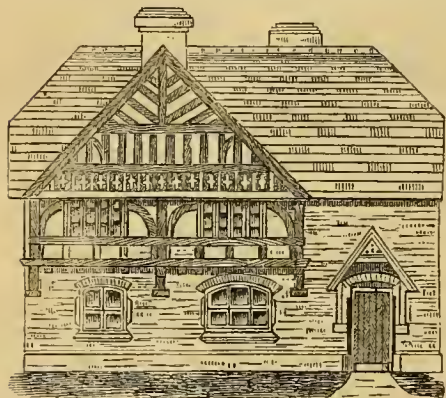


Fig. 1.—FRONT ELEVATION OF COTTAGE.

sion of anything but pleasure in the receipt of the letter referred to. All such letters are especially welcome. I reply as I do to this one only because I know that the operations of many natural causes with which we have to deal in our occupation as farmers are more hidden than many suppose, and have already received more critical investigation—thus far without practical result. Happily, the trouble is leaving us. We have had no repetition of abortion in the same animal, and several which aborted last year have carried their calves to the full period. Our greatest loss arises from the fact that we can not offer for sale for a year or two cows which have played us this trick. The flow of milk has in each case risen to the usual quantity.

I am now trying an experiment—one in the issue of which many beside myself will be much interested, because it relates to the very vital question of labor. Having a multiplicity of occupations, not all at Newport, I necessarily do my farming "at arm's length," and the arm

strong, active, and intelligent, and began very well indeed. It was of the utmost consequence to keep them good, and to counteract the natural tendency of all hired help in America to fall into the indolent and slipshod ways which are the bane of the whole labor question. Hindrek—whom even five years of American farm-life have been powerless to contaminate—had earned a reward of merit, and might have in him still more energy which personal interest would develop.

The experiment consists in an application of the principle which alone serves to promise a fair solution of the whole labor question—the principle of co-operation. The great difficulty lay in the method of application. It is easy enough in manufactures and in trade to decide what shall be a fair basis on which to divide profits between capital and superintendence on the one hand and labor on the other. I have even been able to make a satisfactory adjustment of the matter in the case of my market-garden and greenhouses, where "co-operation" has worked very satisfactorily for two years past. But it is not easy in farming, where the capital is large in proportion to the assured income, and where the risks are great; where the element of "luck" has more to do with the profit-and-loss account than in any other occupation; and where the improvement or depreciation of the value of the land can not be estimated. In the case of Ogden Farm the difficulty is still greater because of the high value of the thorough-bred stock, which is entirely independent of the services of the hands.

The basis finally decided upon was the following: Wages, household expenses, forage of all kinds, and the repair of tools, etc., etc., are more or less under the control of the immediate manager of the farm. Hired pasture and purchased manure tend directly to increase of forage or other crops. Consequently, these items are to be reckoned by themselves, on the debit side of the account. On the other, we put all sales of butter, poultry, swine, and produce of all kinds, and make an allowance of so much a month for the keep of all calves, young stock, and cows not in profit. Whatever profit this account shows at the end of the year (up to a certain figure) is to belong equally to the manager, his wife, and Hindrek. I think the basis is a fair one, and it is of a sort that almost any farmer may adopt. I do not give the figures on which the arrangement is established, because it is not necessary to the illustration, and would hardly be a guide in other cases; also because the influence of any example may as well be exerted without the unnecessary exposure of one's personal affairs. It is enough to say that the sum named as the share of the three persons is a large one, and that I expect to have to pay them the full amount. They were "satisfied" with their wages, and they would have been glad of a much smaller share of profits than I have set apart for them; but the purpose was to make the success of our operations in every detail so important to them that they would have the same effective interest in them as though they owned the farm. This a small sum would not have done.

The effect on the movement and "go" of the whole farm is very much as though I had connected it with a large galvanic battery. My part has become very much that of a spectator, and I need no longer scold, and nag, and coax, and wheedle. The work goes as it never went before—and it will keep going. The clamor for another servant in the house, and

another man in the field, has entirely ceased. My "how goes it?" is now answered by "ganz wohl" (first-rate)—it used to be "ziemlich" (so so). I am now told with delight that 86 lbs. of butter were made at the semi-weekly churning; it used to be with a sad prospect of 100 prints to make that the woman saw 50 lbs. come from the churn. In fact, to make a long story short, it makes all the difference between

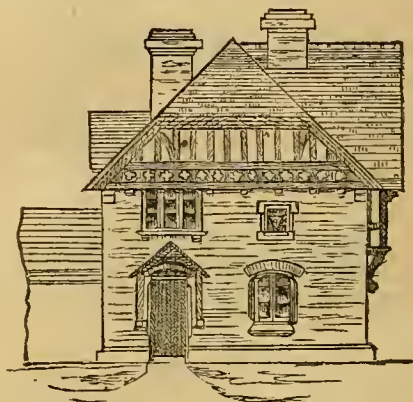


Fig. 2.—SIDE ELEVATION OF COTTAGE.

a pleasure and a pain in the management of the farm, and I am quietly chuckling over the conviction that in straining for their bonus, these worthy people are quietly putting twice its amount into our own pockets of money that comes solely from their extra exertions, and which under the old system we never should have seen; so much clear profit on this little speculation, the foundation of which is—to give the laborer a share of the proceeds of his work and his vigilance aside from his regular wages.

A Neat Farm-Laborer's Cottage.

The demand for houses for laboring men and for small farmers, which shall be pretty without being too costly, is a rapidly growing one, and we are glad to present herewith the designs for "a pair of cottages" recently published by the Royal Agricultural Society of England.

It is intended to be built of brick, except the gables, which are "corbelled out 16 inches; and the timber walls, brick-nogged and plastered externally, are only six inches thick"—that is, timbers are built into the wall, the spaces between them being filled in with broken bricks

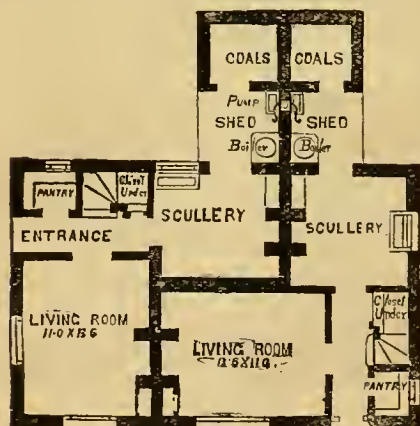


Fig. 3.—PLAN OF GROUND FLOOR.

is sometimes very much elongated indeed. All farmers know that what, in these days of big pay and short hours, is called "a fair day's work" will not answer our purpose. We want more steam—more personal interest in the work. At least, those who are in responsible positions must be stimulated to drive things. It has been already stated that we changed foremen this spring. The new man and his wife are young,

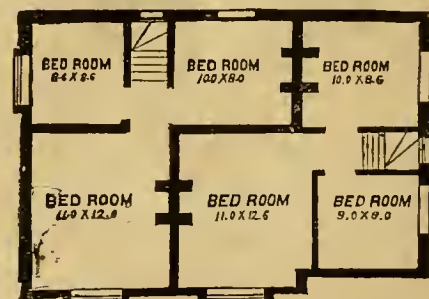


Fig. 4.—PLAN OF SECOND STORY.

and plastered over so as to have the wood exposed to view. The partition between the two houses should be built of brick (eight inches) so as to separate their sounds.

By altering the interior arrangement, this would make a charming home for a farmer's family, or an attractive suburban cottage. The style could be more cheaply imitated in wood, but brick or stone (well clad with vines) would be much more picturesque. The plans of the arrangement of the first and second stories being lettered need no further explanation.

The Bittern or Stake-driver.

Birds of the Heron family are quite sure to attract popular attention on account of their large size and their striking form. Their long legs are formed for wading, and their long and hard bills indicate that they are adapted to catch living prey. The plumage of some is noticeable and valued for its beauty. Our commonest representative of this family is the Bittern or Stake-driver—*Botaurus lentiginosus* of the ornithologists—which is found all over North America. The length of this bird is 26½ inches; its bill is 2½ inches long. Its general color is a brownish yellow, which is mottled with dark brown and brownish red; upon each

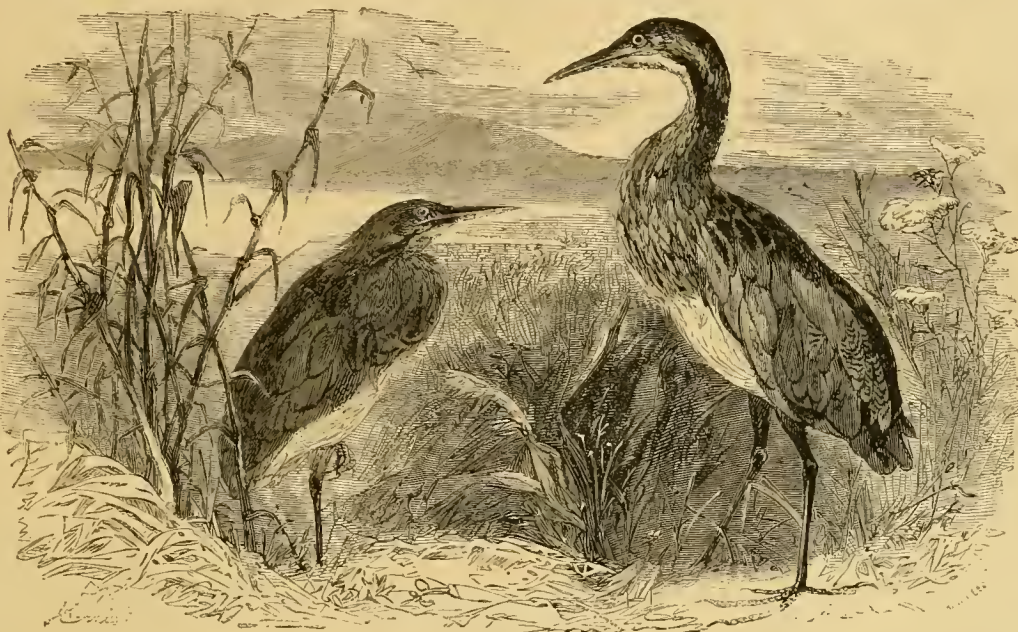
side of the neck there is a broad black stripe which starts behind the ear. This is less nocturnal in its habits than most others of the Heron family, and is therefore more frequently seen. It is especially common in the northern New England States, arriving from the South in March and April, and remaining until October. Its food is fishes, frogs, and probably small mammals, and insects, which it pursues with great industry. Like others of its family, it is social during the breeding season, but solitary at other times. A dozen or more pairs will build their nests within a small area. Their nests are built of twigs, leaves, and grass, and are placed on low bushes or on thick tufts of grass. The eggs are usually four, of a rich drab color. This bird gets the name of Stake-driver from the peculiar note of the male at the breeding season, which is so like the sound made by driving a stake with a mallet, that persons have been deceived by it, and in endeavoring to find the workman have been led into the swampy haunt of the birds. One author renders the note of the bird as *chunk-a-lunk-chunk*, *quank-chunk-a-lunk-chunk*. The young birds are able to take care of themselves in August, when the colony breaks up. Audubon seems to have known but little about this very common bird, as in all his experience he never found a nest. He says that the bird is ex-

tremely timid, and that upon several occasions he has come upon them suddenly, and they were so frightened that he could knock them down with an oar. When wounded, they show fight, especially if a dog is present, and with their large bill they are capable of in-

appearance at the north in March, and nest-building commences in May. The nest is upon low bushes growing in or overhanging the water, or in a tussock of sedge; it is built of coarse grasses and leaves, and lined with finer grasses. The eggs are four to six, light blue, mottled with brown.

Usually there are two broods in a season, and when the last brood has left the nest the various families join and form large flocks of one to two hundred. This is the time of tribulation to the farmer, as the birds give his grain-fields no quarter. It is said that localities near the sea-coast are more infested by them than far inland, and that flocks containing a thousand birds are not rare. Of course, the farmer has, in self-defense, to use powder and shot to defend his crops,

and by the time the birds start southward, in October, their numbers are materially diminished. Some set poison to destroy the birds, but this is not to be commended.



BITTERN OR STAKE-DRIVER.

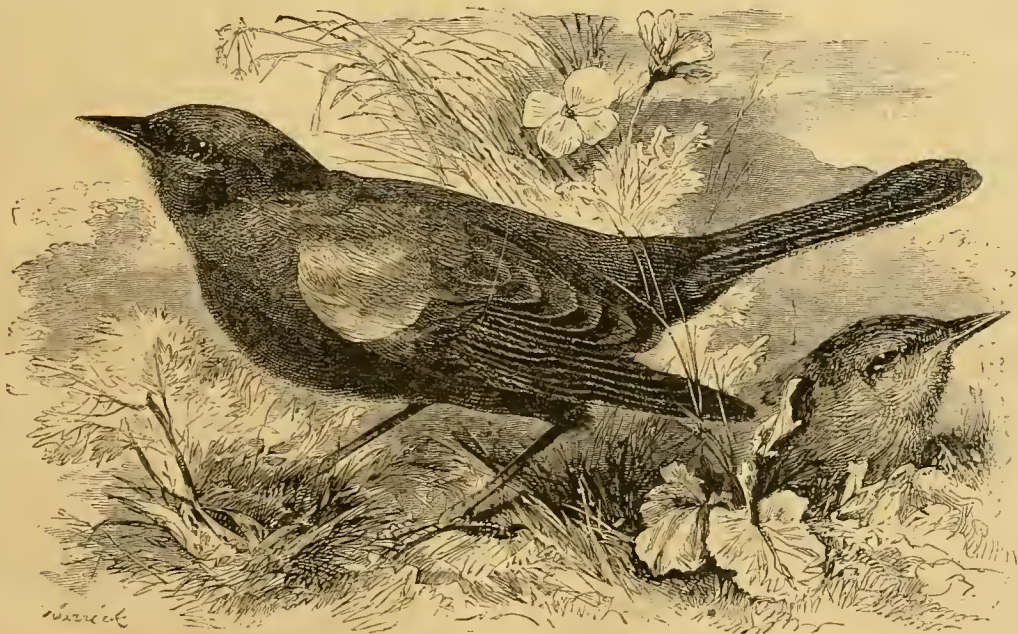
flicting severe wounds, and prove themselves no insignificant antagonists when attacked.

The Red-wing Blackbird.

It is a pity that so handsome a bird as the Red-wing or Swamp Blackbird should have a bad character. When the farmer counts up his feathered friends this bird is not among them. He has reason to regard this bird as his enemy when he is obliged with "force and arms" to drive it away from his grain-fields. The male

IMPREGNATION OF EGGS.—"M. K. W.," Marietta, Ohio. The process of the impregnation of eggs is one that we know but little about, and one on which intelligent farmers can do much to enlighten themselves and others by close and accurate observation. It is generally supposed that hens' eggs require each a distinct

impregnation. It is known that turkeys' eggs require but one impregnation to fertilize the whole contents of the ovary for one season. It is therefore unnecessary for a farmer to keep a turkey-cock if he can procure its services on one single occasion. In England, turkey-cocks are loaned or hired in this way regularly. Professor Agassiz recently mentioned in one of his lectures that it had been stated that a turkey hen which lost her nest of eggs would lay another setting which would be fertile without the



RED-WING OR SWAMP BLACKBIRD.

is a very showy bird; its plumage is a shining velvet black, with a greenish reflection, and its shoulders are of a bright vermillion red. The female wears a less showy dress, the prevailing colors being brown and brownish yellow, with white on the under parts. This bird makes its

repeated presence of the male turkey, but that he could not vouch for it; if true, it was an interesting fact which he would desire to have determined. Any well authenticated cases of such an occurrence within the experience of any of our readers would be received by us with thanks.

Walks and Talks on the Farm.—No. 115.

Last year the wheat crop of Western New York was the poorest we have had since I have been on this farm; and this year it is worse than it was last year. That which was sown early is badly injured by the Hessian-fly; and that which was sown late is thin and poor.

Farmers are thoroughly discouraged. Said one of my neighbors to-day: "I had calculated on getting five or six hundred dollars for my wheat, but I shall not get much more than the seed."

"You farmers must be getting rich," said a city friend, "with wheat at \$2.25 per bushel, potatoes at \$1.15, and hay \$32 per ton."

"Yes," I said, "farming is a splendid business. Don't you want to buy a farm? Farming is not a monopoly. It is not patented. This is a free country. If you think we are getting rich you will find plenty of farms for sale."

But to be serious, taking the city view of the matter, farmers, in this section at any rate, ought to be doing better than they are. There are two main reasons why we are not making money. First, the extreme fluctuation in prices; and second, the low average crops per acre.

There is no remedy for the fluctuation in prices. It depends on causes beyond the control of an individual farmer. It is not caused to any great extent by "middlemen," or speculators, or railroad monopolies. It depends on the great law of supply and demand. All that these men can do is to aggravate the evil. By refusing to buy when the supply is large they may depress prices to a point far below the cost of production; and by refusing to sell when there is a scarcity they may force an article up to an exorbitant rate. But this is all that they can do. Instead of wasting our energies in trying to remedy this evil, it is better to accept the fact that it has always existed and always will exist, and act accordingly. The real remedy is for a farmer to adopt a fixed and definite system of management, and stick to it. At this time last year potatoes were not worth here 25 cents a bushel, now they are worth over a dollar a bushel. Taking one year with another, the crop, in favorable localities, can be made profitable. Make up your mind about how many acres it is best to plant on your farm, and plant no more nor no less, no matter what the price may be. And so with wheat, barley, corn, oats, and other crops. And the same is true in regard to raising pork, mutton, wool, beef, butter, cheese, etc. Adopt a system, and stick to it. These articles will always be wanted, and will bring prices, in the long run, in proportion to the time, labor, skill, capital, and intelligence required to produce them.

The other reason why farmers are getting such inadequate compensation for their labor is the low average yield per acre. The remedy for this is, to a considerable extent, under our control. We must farm better. It is the large area of land under cultivation and the low average yield per acre that is the chief cause of all our troubles. A favorable season floods the markets with produce which can hardly be given away; an unfavorable season causes high prices, but we have nothing to sell. A good farmer would have a fair crop even in an unfavorable season. If I had been a good farmer I should have had 200 bushels of potatoes per acre; but as it was, I had not a hundred bushels per acre—and many of these were too small to sell. For the good potatoes I got \$1.06 per

bushel, and if I had had 200 bushels per acre, and ten or a dozen acres, I should have had no reason to complain of hard times. As it is, I say, "The weather was so dry that my potato crop was a failure." But, in point of fact, I know that this is not the exact truth. I had a bad crop because I am a bad farmer. If I was a good farmer I should have had a good crop in spite of the drouth. This I know, because on one row manured for mangels, but planted with potatoes, I had a large yield of large potatoes.

"That is all very well," says the Deacon, "but where are you going to get your manure?"

"In your case and mine, Deacon," I said, "it is doubtful whether we can afford to buy any fertilizer except gypsum. We shall have to make our own manures. We must make *more* manure and of better quality. To do this, we must either buy more grain, bran, oilcake, etc., to feed to our stock, or we must *raise* more food to feed out on the farm. The better plan is to do both. We must drain our land."

"Draining is all very well," says the Deacon, "but what has it to do with making manure?"

The Deacon plays shy of the drainage question. He has a quantity of low, rich land that is so wet that it could not be plowed until June. I wanted to tell him that if that land was drained it could be cultivated with half the labor, could be sown in good season, and would produce more than *double* what it does now, and consequently enable the Deacon to produce double the amount of manure. Draining, better tillage, and irrigation are the means we must look to for growing larger crops and making more manure. We have to get the manure out of the soil, and when we have got it we must be careful not to waste it.

I sent half a bushel of Diehl wheat last fall to E. F. Jackson, of Des Moines Co., Iowa. He writes me that it does not seem to be as hardy as their own wheat. "The seed," he says, "was the nicest I ever saw. It came up well, and I covered the land with stable manure and still it froze out." The truth is, that choice wheat, like choice stock, is not as hardy as inferior kinds. Mr. J. says that nearly all their wheat is winter-killed "except a little now and then on a hill-side sloping south, or well protected with timber." On the other hand, Mr. F. K. Adams, of Wisconsin, writes that his winter wheat is all killed except a small patch "facing the north." I apprehend that it depends more on draining and on the fertility and condition of the land and on the period of sowing than on the exposure. We must aim to get the plants strong and vigorous before winter sets in. I do not mean that we must sow early. This may or may not be desirable. But the real point is to get the land free from stagnant water, and at the same time have it rich enough and moist enough and mellow enough to give the plants a good start.

We talk about raising "wheat enough for the world," but our own population is increasing so rapidly that the time will soon come when it will tax our skill to raise wheat enough for ourselves. We shall do it, of course, but we shall have to farm better than many of us do now. And he is the wise man who is getting his land cleaner and richer.

M. A. B., of Illinois, says he would like to know "if plaster is a manure?" Certainly it is. Anything that will increase the growth of a crop is manure. Tillage is manure. "We

have used plaster here in Illinois," he says, "on young corn, and could not tell where we put it; while in the State of New York, when I used to put plaster on corn I could tell to a row by the color of the plants where the plaster was used." On black, rich, moist soil plaster rarely has any beneficial effect. "Would a field," Mr. B. continues, "which had plaster sown on it every year, and the crop all removed, hold its own longer than if plaster was not sown? or, does plaster simply make the plant-food of the soil more available, and must we put on manure to keep up the fertility?" That is it. If plaster will increase the crops, use it. Then feed out the crop, or at any rate the increase, and return the manure to the soil. Plaster so used will make the land richer. But to use plaster to grow larger crops, and then sell the crops, will make the land, sooner or later, poorer.

A young farmer wants to know the relative nutritive value of hay, straw, and corn. It depends so much on circumstances—on the kind of stock and on digestion—that I can give no satisfactory answer. Of nitrogenous matter and available carbonaceous matter:

	Nitrogenous Matter.	Available Carbonaceous Matter.
100 lbs. meadow-hay contains.	8¼ lbs.	46¼ lbs.
100 lbs. wheat-straw contains.	2 "	34 "
100 lbs. clover-hay contains.	13½ "	38 "
100 lbs. Indian-corn contains.	10 "	85½ "

My young friend can figure out how much corn he would have to add to a mixture of clover-hay and straw to make the feed equal to meadow-hay, bearing in mind, however, that our animals, as a rule, object to being fed on chemical principles unless you mix plenty of grain with them. The chemists are correct enough, but they do not sufficiently consider the question of digestion. For my part, I am satisfied that we can feed our animals in this section cheaper on clover-hay, straw, and Indian-corn than on timothy-hay and oats.

This spring we were feeding the farm horses chaffed clover-hay and corn-meal, moistening the hay and mixing the meal with it. We got out of clover-chaff, and it was over two weeks before we could conveniently cut any more, and so we fed long timothy-hay with corn-meal and bran. The horses manifestly did not do as well on this as on the chaffed clover. This was so obvious, that we gave them oats instead of meal, but even then they did not do as well as on the clover and corn-meal. So far this is strictly in accordance with chemical principles. I suppose horses driven at great speed on the road would do better with oats and timothy, but for the slow work of the farm the clover and corn-meal are better—and certainly far cheaper.

I told you, I believe, that the Deacon has adopted one of my ideas. He is feeding his cows a couple of quarts of corn-meal per day while at grass. The effect he says is wonderful. I have strong hopes of the Deacon yet. I tell him he will adopt another of my crotchets—that of mixing say half a pint of corn-meal in a pail of water for the horses when they come home from work at noon; but he shakes his head, and is expecting soon to hear that I have lost a horse or two from colic.

Dr. Stiles, of Texas, asks me some questions in regard to the management of Essex-bred pigs. "My young thorough-bred Essex pigs," he writes, "are two months old. Is it time to wean them? I have fed them myself, three times a day, since they were three weeks old,

on corn-pudding and milk or dish-water. There are four of them, and I fill a two-quart bucket with the mixture for each meal. After greedily eating up this, they finish off with shelled raw corn from one ear, which they like to crack. They are as fat as it seems possible for them to be, and full of fun and life. I have fed their mother always three times a day on cooked corn-meal and dish-water, finishing off with nearly a quart of shelled corn at every meal. She is as fat as she was before the pigs were born—I think fatter. Her bags are distended with milk a great part of the time, and if I take away her pigs will she not have fever? Must I reduce the food of either mother or young ones? Yes. The young pigs will stand high feeding until four or five months old, but they should have plenty of exercise. I would stop giving the sow the shelled corn, and let her have nothing but slops. I would let the pigs suck as long as the sow will give plenty of milk. The Essex are so quiet, that after they have attained their growth they require very little food. I am now giving my breeding sows no grain of any kind—nothing but grass, with a feed of slops made of bran once a day. In the winter I give bran and a little corn-meal. In the spring, before grass comes, I feed more or less mangels. If I had enough, I would feed all my breeding sows a bushel of mangels each per day from the first of March until the middle of May. During the winter I would feed them about half a bushel of mangels per day and a little corn or bran.

The Scott Township Farmers' Club of Stenben Co., Ind., are disturbed in their minds by my statement that ammonia will not escape from a well-managed manure heap. They say the opposite doctrine has been taught by high agricultural authorities; "and now," they ask, "which statement have we to believe?" Examine the evidence, or, better still, test the matter by experiment. If ammonia was escaping from a fermenting manure-heap it could readily be detected by the nose, or by litmus paper, or by a rod dipped in muriatic acid. I want no controversy with any one on a matter of this kind; and it is certainly not for me to say what a man shall or shall not "believe." I have no sort of doubt that there are thousands of manure-heaps from which ammonia escapes; but this is simply because they are badly managed.

After considerable experience in the use of petroleum for painting implements, wagons, machines, etc., I am satisfied that it is a good thing. But it is necessary to use it freely. The great point is to saturate the wood. All the pores should be filled with petroleum. I painted a new pine wagon-box some time since with petroleum. I went over it half a dozen times in as many days, being especially careful to apply the oil at the ends of the boards and to hold the brush against them as long as they would absorb oil. You will understand what I mean if you have ever used petroleum in this way. It is astonishing how quickly the oil penetrates into the pores. By going over this wagon-box repeatedly, I succeeded in getting it to absorb over two gallons of oil. I am not afraid to have that box exposed to the rain and the sun and wind. Merely going over the wood once with the petroleum does comparatively little good, unless you propose to paint afterwards with ordinary oil paint. I would mix nothing with the petroleum. Saturate the wood with it,

and that is all that is needed. Now is a good time to do it, while the wood is dry. The petroleum will take the place of the water.

Elder Roberts, who has recently been in Kansas, remarked to me to-day: "You have no idea how hard times are in the West. Why, a man will draw a load of corn many miles to market, and then not get more than \$3 for it." No doubt this is all very true; and there is no remedy except not to sell the corn. Convert it into pork or beef. It must be a poor breed of pigs that with pork at \$5 per 100 lbs. live-weight will not net 50 cents a bushel for the corn. It is not probable that we shall again for some years see pork as low as it has been for a year or two past. The low rates have introduced American pork into many new markets, and if we only take pains to furnish a choice article, there will be a demand for all the pork, hams, and lard we can produce. The Western farmers, like ourselves, may well feel discouraged, but there is no reason for despair. The prospects are brightening.

How to Start Manufactories in a Farming District.

The want of a market, which lies at the bottom of the farmers' fight with the railroads in Illinois, is a serious trouble in many parts of the East. The farmers who are near large cities and villages do well enough, but there are still large districts remote from railroads where there is little variety of labor, and the farmers have nobody to feed except the blacksmith, the shoemaker, the merebant, and two or three professional gentlemen. They have to drive from twelve to twenty miles to market every load of wood, every pound of animal or vegetable food that is sold from the farm. This is a very serious drawback to the profits of husbandry in such districts; so serious, that it discourages effort and sends multitudes to more favored regions. The farms are running down, the buildings are going to decay, and the price of land is even less than it was fifty years ago. In many cases the old homestead is a ruin, and the land sold for a song to the next neighbor. And this happens, too, in places where there is good water-power waiting to turn wheels, and abundance of wood and other raw material for manufactures. The best remedy for these unthrifty regions, in the East certainly, is the introduction of manufacturing industry. Some kinds of manufactures, no doubt, are best carried on in cities, notwithstanding high rents, costly steam-power, and expensive labor. But other kinds can be more profitably pursued in the country, where there is plenty of room, cheap raw material, and cheap food and labor. An agricultural town does not always see that it is much cheaper for them to create a home market in their midst than it is to carry all their products twenty miles to market. They would not positively make war upon a man who should propose to invest a hundred thousand dollars in manufacturing industry in their midst, but they would expect to get an extra price for the lands watered by the stream that was to furnish the power, and they would get all the taxes they could out of such an investment from the start, without any reference to the productiveness of the capital. A proposition in town-meeting to remit taxes to a manufacturing company for five or ten years as an inducement for them to start a new enterprise

would be voted down by a large majority. Yet this kind of inducement is often the thing that determines the minds of men of large capital who are looking for new localities to start manufactories. The advantage of such a diversity of industry to the fortunes of farmers is not likely to be overestimated. The fruits of such investments are visible in all the southern portion of New England, and in many other places. The changes wrought by them, even within the memory of middle-aged persons, is wonderful. From the window where we write we look out upon a valley with a population of over four thousand, where but a few years ago there were hardly a dozen families all engaged in the cultivation of the soil. There was no home market. Grain was shipped to the distant city, and butter and cheese to the South. So small were the profits that not much was raised, and there was not much capital beside the land, the stock, and the buildings. The scene is much changed now, and it is all owing to the business enterprise of a few individuals who studied the natural resources of the valley and developed them. Every farm within ten miles of the village feels the effects of this large increase of wealth and population. There is not only a home market for everything the neighboring farms can produce, at remunerative prices, but supplies are drawn very largely from the West. The price of the farming lands has been doubled, and in many cases quadrupled. It has made a good many families prosperous by the rise in the price of lands, and the whole business of agriculture is elevated to a higher plane by the presence of this home market. It is in the power of almost any agricultural township in the more thickly settled portions of the country to vary its industry, and create a home market, by holding out special inducements for manufacturers to start new enterprises among them. The power and the raw material are there unused. Let the new industries be warmly welcomed.

Thatching Stacks.

There is no question but that a large portion of the cost of barns and sheds for storing hay and grain might be spared. The idea is current that barns are necessary to protect the gathered crops from damage by the weather, and that a large portion of them must necessarily be lost if stacked out. With the method of stacking in general use in the United States this idea is a correct one; but there is no reason why our method should not be so improved that a stack may be made perfectly weather-proof. In Great Britain, where the climate is very much moister than ours, and where during the fall and winter months it is almost constantly raining, the farmers as a rule stack their hay and grain; and it is not at all unusual to find stacks of grain two or three years old, which, when opened to be thrashed, are in a state of perfect preservation. If the English farmers can do this, and thus save the cost of expensive buildings, why should not we do it? We can if we will. We are very apt to think that unless a thing can be done in a very short time it will not pay to do it, and that any process that requires some extra time is unprofitable. But with the increased value of time, as compared with past years, we find an increase in the value of other things, and generally it will be found to pay to economize now, as formerly, not only in labor, but in other expenditures.

The old-fashioned system of thatching stacks

is not adapted to our present needs. That required a slow process, and one which must be performed at a season when work must be hur-

ried, and was only possible where help was cheap and plentiful. That time has passed, not only here but in Europe; and we notice that the old system of thatching in use abroad has

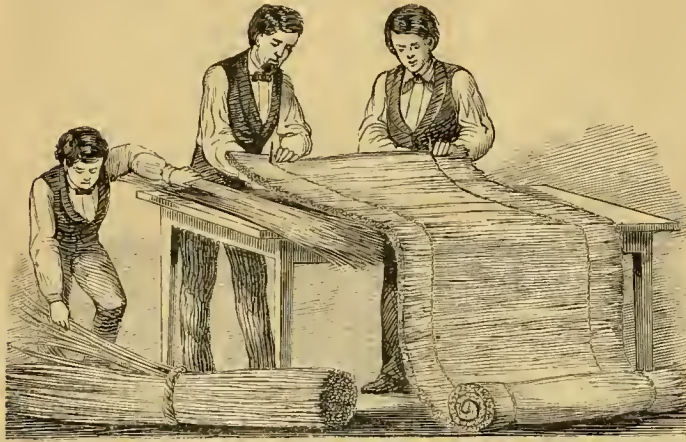


Fig. 1.—MAKING THE MAT.

been greatly improved upon. Instead of taking the straw by handfuls and pegging it down upon the stack, or sewing it upon the roof, it is now placed in a machine and sewn into rolls of matting, which may bespread out on the top of a stack and made to cover it in a very short time.

The mats may be prepared when work is not pressing, as during winter or in stormy weather when out-door work is not possible. But we can, if necessary, dispense with the machine—which is a sort of sewing-machine, working with two needles and shuttles, and turned by a crank by one man, another feeding the straw. The same work can be done, in a slower manner certainly, but

equally as well, by hand. Let the straw be gathered into bundles and laid as regularly as possible. It should then be wetted, to prevent it from breaking in the handling. Handfuls are taken from the bundles and laid on a table, where two persons are engaged in the sewing. The stitch needed is what is called a back-stitch; that is, the stitches are made two inches long or more, which must depend on the condition of the straw, and each stitch is taken back and the needle passed through the straw a little behind where the thread of the previous stitch is seen. This stitch binds the straw firmly together, and it is rendered more durable if at each six or eight stitches a knot is made and drawn tight. The straw used should be rye if possible; barley or wheat will answer a good purpose, but the thatch will be narrower. As it is sewed together it is rolled up, and the rolls may be made of any desired length. At figure 1 is shown the mat. Figure 2 gives the needle used, which any blacksmith can make; and in figure 3 is shown the mode of making the stitch. Any sort of table or bench will answer the purpose, and the twine should



Fig. 2.

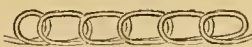


Fig. 3.—THE STITCH.



Fig. 4.

be of tarred hemp. When the mats or rolls are prepared, they are used in the same manner as the rolls of prepared roofing of paper or other material. One is laid down on the stack projecting over sufficiently to throw the drip of water clear of the edge, and it is pinned down by wooden pins shaped like the one shown in figure 4. In covering a round stack, the man who works on the stack should have one end of a rope passed around his body, and a noose at the other end hitched on to the pole which passes up through the center of a stack, as in figure 5. He is perfectly secure then from falling or slipping, and can work much more rapidly than when in constant danger. The one who assists him follows him around, and hands up the pins and mats as they are wanted. When the

or slipping, and can work much more rapidly than when in constant danger. The one who assists him follows him around, and hands up the pins and mats as they are wanted. When the

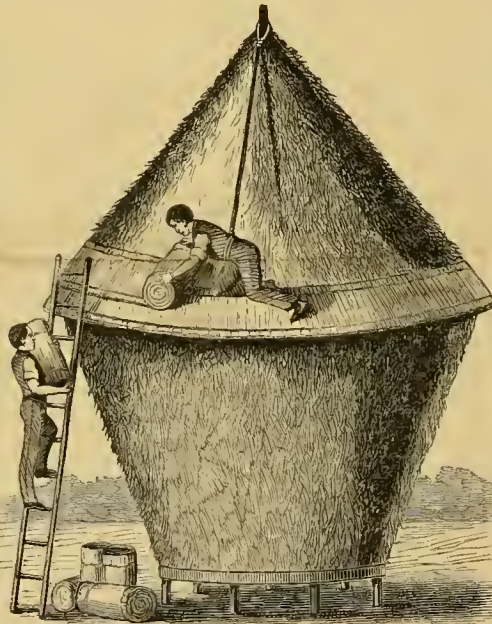


Fig. 5.—PUTTING ON THE THATCH.

thatch is all laid on, a cap is placed on the top, and secured against the entrance of water by being firmly tied to the center-pole. Generally, a stack is built upon the ground, and a considerable quantity of hay is spoiled at the bottom of it, by moisture absorbed from the damp earth. A more economical method would be to build a foundation for each stack of a permanent character, made of timbers framed together, and resting on rat-proof supports at least two feet above the ground. There is in this case no loss from moisture, and no hiding-places beneath the stack for rats, skunks, or other vermin to gather in.

FOXES.—These scourges of the farm-yard are best circumvented with poison. The steel-trap is sure, but the trouble is to get the fox's foot into it. They are always suspecting mischief, and it costs too much to circumvent their cunning where they smell iron. The most effectual remedy we have ever tried is arsenic or nuxvomica applied to the carcass of a dead bird or lamb. If it is a bird they have partly devoured it is all the better. They will be pretty sure to come back to the spot to finish their feast. One

dose of the poisoned meat fixes them. Then if you will saturate old rags in melted sulphur and scatter them about the sheep-pasture or poultry-yard, you will not have any more visits from the foxes the present season. They are easily frightened by the smell of sulphur. *

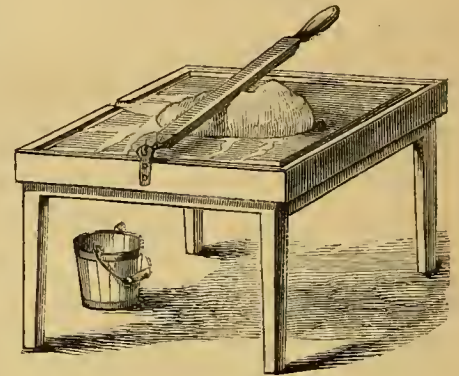


Fig. 1.—BUTTER-TABLE.

An Efficient Butter-Worker.

"L. W. L., Orange Co., N. Y., and others, will find the butter-table herewith figured (figure 1) very convenient, and well adapted for economizing labor. It is made of white-oak or maple, soft-maple being probably the best timber that can be used. The top is a slab three or four inches in thickness, so as to have weight and solidity; four feet long and two or three feet wide, according to the quantity of butter to be worked on it. It is mounted on four stout legs 27 inches long. A rounded channel or groove passes around the edge to collect the buttermilk, which runs off into a pail placed to receive it, as shown in the engraving. The butter-worker is a triangular staff (fig. 2) three feet long, and four inches wide on each face, with a handle on one end and a swivel attachment whereby it hooks on to a staple fixed to one side of the table at the other end. The slab having been washed with salt water and well rinsed with ice water, is ready for the butter as it is taken from the churn. As soon as it is laid upon the table it is cut or gashed and pressed with the staff, and freed very quickly from the buttermilk. If desired, ice-water may be thrown over the butter, and it immediately runs off by the channel.

We have used a similar table and worker for some years, and have seen it frequently in use in the Pennsylvania dairies, where the choice

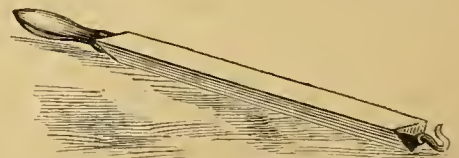


Fig. 2.—BUTTER-WORKER.

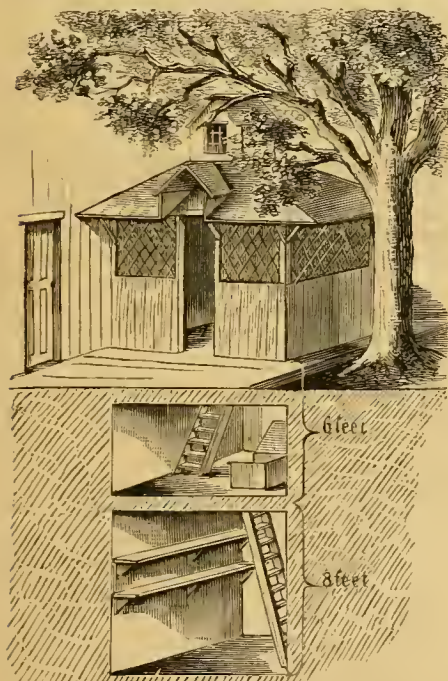
Philadelphia butter is made. Mr. William Crozier, of Beacon Stock Farm, whose butter sells at the dairy for 75 cents a pound, uses a worker which if not exactly like this is on the same principle. With our own experience added to these indorsements of it, we can recommend this to our Orange County and other correspondents as being far ahead of the old-fashioned bowl and ladle.

REMOVING VERMIN FROM SHEEP.—"J. S. L." Dipping the lambs after the sheep have been sheared is the easiest way of killing off ticks. If not done effectually the pests increase very

fast. Where they are not very numerous (or if scab is present but slightly) the carbolic solution may be poured along the back and guided through the wool. This is wasteful if the flock is large, but may do for a small one. It will have to be repeated, however, at intervals.

Milk-Cellar.

Several inquiries, mostly from Southern correspondents, ask how to build milk-cellars which can be kept cool. These inquiries bring to our recollection a milk-cellar which we saw a few years ago in North Carolina, and which we have not since seen improved upon anywhere. It was built in connection with a very pleasant and comfortable although an old mansion. The entrance to the cellar was from the porch which ran around the house, and adjoining the rear or kitchen door. A handsome shade-tree and a grape-vine protected the entrance, which had lattice-work on three sides, with a door, also partly of lattice-work, in the front. A few steps led down into a very cool apartment about six feet below the ground, well lighted from a glazed cupola in the roof, and built of brick, and whitewashed. It was circular, with a raised hatchway in the center, which



MILK-CELLAR—ELEVATION AND SECTION.

could be closed up tightly or opened at will. A trap-door at one side led to a stairway to a lower cellar, which was the milk-room. The upper apartment was used as a store-room for kitchen utensils, churn, and other similar articles. The lower cellar, when the hatchway was open, was well lighted. It was also of brick, and cleanly whitewashed. The floor was of brick, not cemented together. Shelves ran around this cellar at a convenient height on which were kept milk, cream, butter, and other things proper to a milk-room. Although it is now five years since we saw this cellar, its coolness, perfect cleanliness, and sweetness was so impressive that the remembrance of it is still perfectly distinct. The cellar was circular, about 10 feet in diameter, and in all about 14 feet deep. The lower apartment was ceiled over with wooden beams and a tight floor. The cost of the whole would not be beyond the means of almost every

farmer, and its peculiar construction adapts it excellently to the needs of Southern farmers and planters on account of the extra coolness gained by the division into two apartments. We give on this page an engraving showing the plan of construction, which will make the description perfectly plain, giving the entrance building above ground, and a section showing the part beneath the ground.

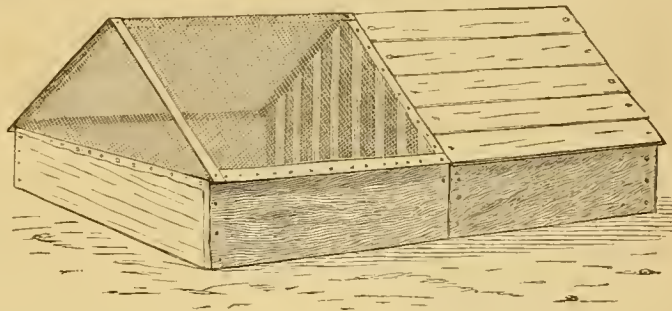
Waste from Woolen Mills.

Large piles of waste are frequently left about woolen factories, or are thrown into the water to float down the streams. A few manufacturers who have land to cultivate know that it is good manure; but its value generally is very much underrated. The owner of a woolen mill recently remarked that he thought it was worth about as much as so much snow to manure the fields. The price varies according to its supposed value. In some places they are glad to give it away to have the rubbish removed. In others it sells from one to ten dollars a cord. It is composed very largely of refuse wool made in the process of dyeing, carding, spinning, weaving, and dressing, with some chips and dirt. Wool, it is well known, is very rich in nitrogen, and makes a very valuable fertilizer. In this waste the particles are fine, and soon form food to be appropriated by the plants. We have seen this waste used with excellent effect in various ways. It does well as a top-dressing for meadows and lawns, spread at any season of the year when it can be procured. If evenly spread, it will generally disappear in a single season. If anything remains over it can be raked up and put in the compost heap. For hoed crops, it is better to compost it with other manures, covering the whole heap with a thick layer of peat or turf, and fork it over after lying two or three weeks. This woolen waste should be looked after by the farmers, who carry their produce to the factory villages and want a return load. The transportation will cost but little, and every load of woolen waste will add something to the productiveness of the farm. The product of wool in this country is estimated at 128,000,000 lbs., and a very large quantity is imported in addition. All this wool, either as waste in the manufacture or as goods worn out, ought to be returned to the soil. Fertilizers are every year becoming more valuable, and all these wastes in the process of manufacture ought to be carefully gathered and utilized. We have noticed that our most thrifty farmers who market their wares in villages seldom go home with empty wagons.

A SECOND CROP OF POTATOES.—"N. E. B." If the soil is in good condition, one crop of potatoes may succeed another on the same plot. The best manure for potatoes, as for all crops, is well-rotted stable manure. Fresh manure tends to make scabby tubers, and promotes rot. Next to stable manure are wood-ashes and the mineral manures, such as phosphates, and, on some soils, guano. Very stimulating manures are apt to cause a great growth of tops, and few tubers proportionately.

A Safety Chicken Coop.

A chicken coop, which may be called a safety coop, is shown figured below. It consists of a frame, made of three boards six inches wide and about two to three feet long, one end being wanting. Upon this frame two other frames of strips two inches wide are nailed, so as to meet at the upper part. These two frames are covered with wire-gauze or mosquito-netting, and a handle of wire is fixed on to the top by which it may be lifted about. When a brood of young chicks is put into a coop, the safety-coop may be placed in front of it, under which the chickens can run free from danger of getting into wet grass, or wandering away from the hen; and safe from rats, skunks, or hawks. When one brood



CHICKEN COOP.

is old enough to take care of themselves, the protection may be used for another.

A Cheap Rain-water Filter.

In many parts of the country there is a scarcity of water during two or three months of the year. At that time the ground has become parched, and all the rain which falls becomes quickly evaporated by the heat and dry winds, and none of it finds its way into the springs or wells, which are very often dry. Rain-water then becomes the only dependence. This, with those farmers who can not afford the expense of a cistern, is gathered into casks or barrels, and soon becomes foul and unfit for use. By a little contrivance, this water saved from the roofs of buildings may be kept perfectly sweet. It will be a matter of great importance in the cases referred to that tight



A CHEAP RAIN-WATER FILTER.

spouts should be provided, so as to secure all the water that falls on the roofs. This should be conducted into a barrel or hogshead provided with a close-fitting cover. Another cask or hogshead should be placed by the side of the first one, and both should be raised from the ground on some suitable support. The two

casks are connected together by a short pipe fixed in the bottom or lower part of the side of each. A board about twelve inches wide is fixed across the lower part of the second cask, as shown in the annexed engraving, and on each side of it a filter is arranged, which consists of, first, a layer of gravel, then a layer of small charcoal, then a layer of fine gravel, with some coarse gravel on the top. The water from the first cask passes into the second through one side of the filter, and, when drawn off by the tap or faucet, passes through the other side of the filter, thus being discharged perfectly clear from all impurities, and free from any unpleasant taste which may have been gathered from the roof. The casks should be painted, and, if possible, a shed or shade should be built over them to protect them from the sun's heat. When not needed, it will pay to take them down and store them in the barn or some convenient dry place for future use.

What are "Common Cows" in England?

Some months ago we should have said the question above proposed could be of no possible interest or importance to American farmers. But we should have been very much mistaken. At the Shorthorn Breeders' Convention, a resolution was introduced "that animals should be traced on both sides to imported animals, before they can be entitled to registry" in the American Shorthorn Herd-Book. This led to a very able and animated discussion. We have good Shorthorns in this country that can not be traced back on both sides to imported stock—animals that have sold for as high as \$2,000 each. Mr. Allen, the editor of the Herd-Book, gave it as his opinion that animals might be registered that "had *six crosses* of Shorthorn blood, and then went back into something that was known and recognized." It was shown that *four crosses* were all that were required in England to entitle an animal to registry in the English Shorthorn Herd-Book. And Mr. Porter, of Illinois, asked, "When our farmers are told that *ten crosses* are of no account that end in the American woods, what are they to think when you take up another with *four crosses*, which you hold perfectly good, because that ends in the English woods?"

Judge Jones, of Ohio, said, "The Shorthorns are as original and distinct a breed of cattle as any other cattle whatever. We are *doing ourselves monstrous injustice*, and practicing a fraud upon the people, when we say otherwise. Now Mr. Carr [an English authority] says that *four crosses* will serve to make a capital cow out of a common market-cow. He says this 'Durham ox that traveled, was got by the bull Favorite, upon a common cow. What is a common cow in that country? Why, a Shorthorn cow!'"

Now there are in England Hereford, Devon, Sussex, Norfolk, Derby, Leicester, Longhorns, and Durham Shorthorns, and half-a-dozen or a dozen other breeds or sorts of native cattle, besides Ayrshires, Galloways, West Highland, and Alderneys, and we supposed that "common" cattle were such as are raised with no reference to breed or pedigree. They may have some Shorthorn blood in them, or they may not. They may sometimes be pure Shorthorn, and that is all that can be said. They are much more likely to be a mixture of half-a-dozen breeds, for according to our observation the ordinary English farmer is quite as much given to use a grade,

cross-bred, or common bull as the farmers of this country.

We are as anxious as any one can be to keep our Shorthorn cattle pure. We have great faith in the value of a thoroughly established breed—not because they look better, handle better, give more milk, mature earlier, grow larger, or fat more readily than cross-bred cattle or grades, but simply because, when they possess these good qualities, they have far greater power of impressing them upon their offspring. But while we are anxious to exclude from the American Herd-Book all animals of doubtful origin, we want to see fair play, and no favor shown to English breeders that is not extended to our own breeders. We would not admit an English-bred animal to the American Herd-Book that would not be admitted if it had been bred in America instead of in England.

The Feeding of Young Turkeys.

Why is it that one farmer will raise nearly every turkey-chick that comes out of the shell, and do this nine years out of ten, without much respect to wet or dry seasons, while another loses from half to three-quarters with about the same uniformity? We know of men with whom success is the established rule. They are very systematic in this, as in all their other business. We visited one of these thrifty farmers, who raised 165 turkeys last year from nine hens, and upon inquiry found that he did about the same thing every year. We wanted to know just how he managed to secure this uniform result, and found him communicative. He insists upon good stock to begin with—the best always selected to breed from. Then he places great reliance upon regular feeding during the fall and winter, so that the flock becomes very gentle, and the hens make their nests immediately about the sheds and barns in places prepared for them. This is a great safeguard against foxes, skunks, crows, hawks, and other creatures that destroy the birds or their eggs. When the young first come off the nest they are confined in pens for a few days until they are strong enough to fly over a board inclosure one foot high. He feeds frequently with coarse corn-meal and sour milk until four o'clock in the afternoon. He found in his experience that he lost a good many chicks from the food hardening in the crop. There is danger from over-feeding. As the chicks grow, the sour-milk diet is increased, and during the summer it is kept constantly in a trough for them. They are exceedingly fond of sour-milk and butter-milk, and they grow very rapidly upon this diet. An incidental advantage, and a very important one he thinks, is that the young birds are prevented from straying very far from the house. They return many times during the day to the butter-milk trough for their favorite food. This, with Indian-meal, constitutes their principal food until midsummer, when insects are more abundant, and they wander farther from the house. This method can easily be tried on dairy farms.

How Early should Heifers have Calves?

There is a great difference in the practice of farmers in this respect—some feeding high and breeding as early as possible, and others keeping the heifers away from the bull until their third year, feeling quite satisfied with a calf at three years old. It is admitted that the heifers grow larger that breed late, and if beef is a

prominent object in the animal this may be good policy. But in dairy districts we want milk, butter, and cheese at the earliest moment that the animal is capable of producing them economically. The Jerseys and their grades bring calves quite early, sometimes at 15 months old, frequently at 18 months, and as a rule at two years or under. The heifers that come in at fifteen months frequently lose their calves, and their growth is a good deal retarded. But the milking qualities of the animal are generally developed, and if the heifers have rich pasture and are well fed during the winter we prefer to have them come in the second spring after birth, say from 20 to 24 months old. This saves at least a year's keeping, and we think makes a better cow, although she may not be quite so large. The cost of keeping a two-year-old heifer in the older states is from \$35 to \$50 a year, and if there is no calf until she is three years old it is so much money out of pocket. We have never been able to discover much difference between the quantity of milk given by a heifer in her second and third year. If well cared for, the two-year-old begins to pay as soon as she brings a calf. If of good stock, and a heifer, the calf will be as well worth raising as any subsequent calf dropped by the same mother. She will probably give more than milk enough to pay for her year's keeping, and the calf will be clear gain. The cost of keeping cows in the Eastern States is now so great, that one needs to put them to breeding at the earliest day it can be safely done. At three years old the animal has consumed not far from eighty dollars' worth of food, whether she have yielded any return or not. If you can put fifty dollars to her credit at the close of the third year it looks a little more like making the raising of dairy cows a living business.

Steam-Plowing in Europe.

That steam-plowing is certain to become at some future period a regular branch of agriculture, may not be doubted any more than that steam will eventually supersede horse-power wherever it can be made available in the future as it has already done in the past. Agriculture can not afford to remain behind the other arts in any particular. It has been brought to that condition now in England and the East that convenience mainly determines whether the farm be plowed by steam or not. Its great economy is no longer in doubt. In the month of April last, at a meeting of the London Farmers' Club, a paper was read by a farmer, Mr. J. K. Fowler, relating his experience with steam cultivation. In the discussion, or rather remarks—for there was no divided opinion upon the matter—which followed, several other farmers gave their views in a practical and interesting manner. It appears that the use of steam is so rapidly extending, that at one factory in England 100, chiefly double, engines are made yearly to supply the home demand, and 60 yearly for foreign customers. Also, that the unfavorable condition of the public and farm roads, the weakness of the bridges, and the crooked fences and small fields greatly retard the use of the engines. That in Germany 50 engines are at work on the sugar-beet farms, and that the improved cultivation—a depth of 15 to 30 inches being reached—so increases the quantity and quality of the crop that the enterprise is very profitable. In England, 200 acres a week have been plowed by one set of engines and plows, with three men, and horse

and cart to draw water and fuel, to attend it. The cost of breaking up the ground 12 or 15 inches, and then cultivating or breaking or loosening the subsoil, not turning it over, to 20 or 30 inches deep, is there \$3 (three dollars) per acre for both operations. (Here our circumstances would about double that cost.) There it pays a tenant farmer with but 200 acres to own a set of plows and tackle, the cost of which varies for different styles from \$13,000 down to \$3,000. Mr. Fowler estimates that the original cost of stocking a farm that could fully employ an engine and tackle would be but little more than an equivalent force of horses with the harness and implements.

The engines used in England are wholly on the round-about system; that is, the plows are drawn across the field by two locomotive engines, one at each headland, or by one assisted by an anchor on the opposite headland. The plows in a gang of seven, plowing a land six feet wide, are drawn by a steel rope which is wound upon a drum on the engine. The direct traction-engines are found to be inferior in operation. Not the least important benefit attaching to this method of cultivation is that the great depth to which the soil is opened not only renders it porous for the escape of surface-water, but renders it almost completely unaffected by drouths of the most serious character. This, then, is the present condition of steam culture in its native home and adjoining countries, and as one crosses our magnificent level plains from Ohio westward the thought occurs, What a field for the use of steam in place of the horse and plowman, who "homeward plods his weary way" after painfully breaking an acre and a half of soil in ten hours of toil.

The Soiling Question.

We note the following evidence of the value of the summer stall-feeding of stock: Mr. Harry Sedgwick, of Cornwall, Ct., tells us of a young man in his neighborhood who bought eighty acres of land for eleven thousand dollars. This land had previously kept eleven cows, four or five yearlings, and one or two horses. The first year he sowed fourteen acres of corn fodder, and increased his stock to twenty-five cows. He kept them during the soiling season on the product of twelve acres of this crop, and his receipts the first year were three thousand dollars cash. The next year, by the use of the same system, he kept twenty-seven cows, which made an average of one hundred dollars each, though using only a comparatively small part of the products of the farm.

J. R. B., in the *Practical Farmer*, gives an account of what he produced from two and a half acres of land put in first-rate order, and used for soiling and root-growing. The land was used from August 1st, 1871, to the end of the season of 1872. The corn fodder, green rye (for autumn use), and white mustard, furnished food for twenty-five cows for two months, and for thirty-five cows and two oxen for one month. In addition to this, he raised 840 forty bushels of round turnips, the same quantity of beets, and 250 bushels of rutabagas.

It is not necessary for us to say that such farming as this must inevitably pay, and that the more we have of it the better will be the average standard of our agriculture.

OIL-PRODUCING CROPS.—Some of our Western cities, but notably St. Louis and Min-

neapolis, are greatly encouraging the growth of oil-producing crops in the parts of the country from which they can draw supplies for the manufacture of oil. Linseed oil and castor oil are the chief results aimed at. In both these cities there are extensive manufactories of linseed oil, and the former is the headquarters of the trade in castor beans. There is no reason why a large breadth of land should not be devoted to such crops as these where the soil and other conditions are favorable. Not only are they directly profitable in themselves, but their growth will tend to reduce the excessive abundance of corn; while in addition the produce furnishes material for the employment of capital and labor in the vicinity of its growth.

Milk-pail Holder.

"An Old Subscriber" sends us a description of a milk-pail holder, which we have had drawn and engraved that it may be more plainly understood. It is a ring of heavy hoop-iron made



Fig. 1.—MILK-PAIL HOLDER.

large enough to receive the pail and hold it about one-third of the distance below the top. There is riveted on each side of the hoop a curved piece of hoop-iron large enough to fit easily upon the leg of the milker just above the knee. The holder is shown at fig. 1 as it is put together. When in use it is slipped over the bottom of the pail, and enables the pail to rest upon the milker's knees (fig. 2), so that it need



Fig. 2.—HOLDER IN USE.

not be placed upon the floor of the stable or yard, nor be held tightly between the knees, as is sometimes done, with very much inconvenience. By this little contrivance the milking is made much more cleanly and agreeable, and easy for the milker.

Which should Yield the Best Crop?

J. G. C., of Tennessee, writes that he went to that state from Dutchess Co., N. Y. He reads the *Agriculturist*, and "has faith in the highest of high farming," but has not implements and means necessary to carry out his ideas. He and a neighbor treated two adjoining fields of sandy loam mixed with shale as follows:

J. G. C.'s ROTATION.—Field of 15 acres, that had been several years in grass. Broke up in 1870 and planted to corn. In 1871, sown to oats.

In August, 1871, was turned over with a two-horse plow. Harrowed in September, and a bushel of Lancaster (Mediterranean) wheat sown per acre broadcast, and covered with one-horse shovel or bull-tongue plows; all in fine order.

December 1st, turned on 7 head of sheep, and let them remain on the wheat till March 1st.

In February, when the ground was covered with snow, 21 loads of winter-made stable manure were spread on the wheat. In March, sowed clover and harrowed thoroughly.

TENNESSEE FARMER'S ROTATION.—Field of the same kind of soil, but which had been cropped successively for several years. In 1870, planted to corn. In 1871, sowed to oats. In August, 1871, plowed. In September, sown with the same variety of wheat and harrowed in.

RESULT.—At the harvest of 1872, this field yielded more bushels of wheat per acre than the other field.

Mr. C. says: "The result did not, as I had fondly anticipated, develop the superiority of the 'Yankee mode of farming.' Can you point out where my method was defective?"

We do not see that the rotation and treatment differed essentially. A field which has produced grass for a number of years is not necessarily any richer in available plant-food than a field which has been under cultivation. Mr. C. covered his wheat with a plow, his neighbor harrowed it in. Perhaps Mr. C.'s seed was buried too deep. The 7 sheep on 15 acres could do no good—perhaps they did harm. The 21 loads of fresh stable manure, spread over 15 acres, could have little or no effect as a fertilizer. The harrowing in March may have pulled the manure into heaps and smothered some of the wheat. On the whole, therefore, there is nothing very surprising in the result.

Unless the land is in high condition, corn, oats, wheat, is not a good rotation. We should try to introduce clover more frequently. How this can be best done depends on climate and other circumstances. Where the winters are so mild as not to injure the young clover plants, we should try sowing clover seed amongst the corn in August, mounting a horse so that the seed could be scattered above the growing corn-plants. We have seen good clover raised in this way as far north as Western New York.

Blue-fishing.

BY R. R. MINTURN.

In the last days of June or in July the blue-fish appear in our Northern waters.

They come at a lucky time for the fisherman. The cod and mackerel seasons are over; that finest of sea fish, the striped bass, and the tautog, vulgarly called black-fish, are few and far between, and the "scuppaug" are so small that there is little profit in their taking. Blue-fish come to the rescue of the fisherman, and give him a busy and often a profitable season.

There are three modes of taking blue-fish. The most common of these, and the one best known to our amateurs is "drailing." This is always done in sail-boats, with some forty or fifty fathoms of line; but the length of this is graduated by the speed of the vessel, the object being to keep the "drail" just under water. This last-mentioned article is made by running about a pound of lead on to the "shank" of a large No. 1 Limerick hook. This "drail" when finished is cylindrical in shape, tapering to a sharp point at both ends, beginning two-thirds of its length from the hook, and growing smaller each way until it meets the shank of the hook at one end and a "cock-eye" at the other. Into this latter is fastened a stout thong of leather, to which is attached the line, a "cable-laid" cord of the best material, one-sixteenth of an



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BLUE-FISHING FROM THE SHORE.—*Drawn by Edwin Forbes for the American Agriculturist.*

inch in diameter perhaps. Over this "drail" is now stretched an eel-skin, its usual toughness intensified by lying a month or so in strong brine. This is fastened on by running lead and all right through it, and tying the skin at the junction of the leather and eye. It is allowed just *not* to reach back to the foot of the hook, and a blue-fish will take this strange-looking bait when it turns up its nose at a more delicate one. Perhaps I might add that the lead is only added to keep the hook down in the water, for the speed of the boats would skip a lighter hook on top of it like a feather.

Not so with the drail used in "heaving and hauling" either from shore or from a boat at anchor. As the latter is merely a modification of the former, the description will hold good of both. The drail is heavier, longer, and slimmer in proportion to its length than the other, and in shape is something like a fish, although the resemblance is not very marked; it is not covered with eel-skin, but is kept bright by use and an occasional rubbing in sand. The hook is the same size as the other, the lead perhaps eight inches long. The fisherman stands on the beach, as near the edge of the water as he can get, with his left foot well forward, holding

the coil of line in his left hand; with his right hand he grasps it about eight feet, sometimes more, from the drail; that portion of line between his hands is left a little *slack*, and the "shore end" is fast to the stick on which it is wound when not in use; this stick is stuck firmly in the beach. Throwing the drail from him on the sand, so that the line between it and his right hand is *taut*, starting it with a jerk, he swings it around his head, the lead describing a circle about the level of his shoulder. He swings it half a dozen times, then lowers his hand and *lifts* it into the air, at the same time holding the coil loose and letting it flake out; he generally heaves at an angle of 33°. As soon as the line is all out, he stoops quickly, grasping it with his left hand. After the drail strikes the water, he lets it sink a little, and then hauls in briskly, hand over hand. The moment the fish strikes the hook he is off, right and left, up and down, now with his nose in the sand, and then reaching his whole length out of water, madly shaking the hook, then again running right toward the fisherman—this is his most dangerous trick, for if he succeeds in getting any slack he is almost sure to shake out the hook. This sport is often watched by crowds

of spectators, who hail the landing of each fish as if it were their own spoil. To the fishermen themselves it seems to be more work than play.

The take, of course, varies with each day, sometimes they may get none, again they may count as high as forty. The fish are disposed of to smacks, which are almost always on hand to take them; in them they are salted down, taken to the coast cities, freshened, and sold to the fish-mongers, who peddle them out as fresh blue-fish. The original price paid the fishermen varies from 1½c. to 2c. or more per pound undressed. Supposing our fisherman to have caught forty fish, they will probably average him six pounds apiece; this, at two cents per pound, would give \$4.80 for his labor, not a bad day's work for him. If no smack is at hand, he dresses them and salts them down, selling to the smack whenever she may come. He gets more per pound for his fish, but as they dress away a third he prefers selling them fresh.

A blue-fish, to be good, should be cooked before he is an hour out of the water. It is a fish that loses its good qualities by keeping, and the fish of our markets is no more like Simon-pure, fat, juicy blue-fish, dressed before being dead and cooked at once, than chalk's like cheese.

Some Water Plants.

Those who look over English and other foreign catalogues will be surprised to see our common water and marsh plants offered at high prices. In a recent catalogue we read that "*Symplocarpus fatidus*, a very interesting

reach the surface. When closed, as it is late in the day, the flower shows only as a green bud, the four sepals completely enclosing the numerous petals. The flowers open early in the morning, and float upon the surface with a purity of whiteness and a delicacy of perfume unequalled by the rarest exotic. The flowers

Packing and Marketing Produce.

BY J. R. HELFRICH.

[Every one engaged in growing fruit or vegetables for market knows that the raising of the articles is but one step towards getting a return



WATER-SHIELD.—(*Brasenia peltata*.)



WATER-LILY.—(*Nymphaea odorata*.)

American Aroid, with large, handsome foliage (rare), 2s. 6d." When we say that this rare American plant is our common Skunk-Cabbage our readers may think that the English cultivators have strange tastes. If it were not common with us we should value it, for there are few plants more odd in their way of flowering or more luxuriant in foliage than this malodorous inhabitant of our swamps and marshes. We allude to this to show that European cultivators take advantage of every opportunity to beautify their places. If one of them has a pond or stream he considers himself fortunate, as he can then grow numerous aquatic plants in the water, and along the wet margins he can introduce many things that flourish in such situations. In this country we see but very little of this phase of cultivation. Where one has the facilities, there is a large number of water and marsh plants that he can grow, and that can be grown nowhere else. We give illustrations of two of the commonest of our aquatic plants, both of which will adapt themselves to deep or shallow ponds. The engraving on the right is the Water-Lily, more frequently called Pond-Lily, and sometimes Water-Nymph, than which no flower on land or water is more beautiful. The root, or, more properly, root-stock, is very large, and lies in the muddy bottom of the pond; this sends up leaves upon leaf-stalks, the length of which is governed by the depth of the water. The leaves are nearly orbicular, cleft at one side, and from six to nine inches across. The flowers are borne singly upon stems that allow them to

are often nearly six inches in diameter. When the glory of the flower has departed, what remains turns downward to ripen the fruit under the surface of the water. This flower is particularly interesting on one account: it shows a complete gradation between petals and stamens. Some of the inner petals show a tendency to become stamen-like, and as we go towards the center of the flower we find every stage between perfect petal and perfect stamen. It is not rare to find localities where the flowers are pink, and we have heard of, but never have seen, a blue one. Our common species is *Nymphaea odorata*, and in Western New York and other localities is *Nymphaea tuberosa*, which has scentless flowers, and bears tubers upon its root-stocks. When found, as it may be, growing in very shallow water, the Pond-Lily may be grown in a tub of moist earth as a semi-aquatic.

The other plant that we figure is the Water-Shield, *Brasenia peltata*. Its oval leaves are centrally attached to the foot-stalks, and are always noticeable as they float upon the water. They have their use as forming a shade and covert for fish, as anglers are well aware. The flowers are of a dull purple, and come to the surface to perfect themselves, but make but little show. One peculiarity about this plant is that the stems, flower, and leaf-stalks are all clothed with a coating of transparent mucilage, which is soluble in hot water, and has been used for the same purposes as Iceland moss. This aquatic plant has a remarkably wide distribution, it being found not only in this country, including the north-west coast, but in Japan, Australia, and India.

for his labor. No matter how well his produce is grown, if not properly marketed his labor is lost. These articles, by Mr. Helfrich, upon the customs of the New York market, are so important, that we feel that no apology is necessary for occupying a considerable space with them.—Ed.]

TOMATOES.

Tomatoes sent from the South or to a distant market should be picked rather green. In the latitude of Savannah and Charleston they should be picked when they begin to turn red on the blossom end, and they will ripen in transit; at places nearer by, such as around Norfolk, they should be riper or nearly ripe when picked. Do not put up any that are fully ripe, as they will mash, and the juice will sour and spoil the rest. Keep out all worm-eaten, cracked, and sun-burnt fruit. Tomatoes should be packed in crates holding one bushel. These are made of two end-pieces and one middle-piece, 9 × 15 inches, and one inch thick. To these laths 24 inches long are nailed all around, leaving openings of about one inch between the laths. In New Jersey and other places near New York the fruit should be nearly ripe, and is best sent to market in bushel baskets. In packing in crates it will pay to handle the fruit carefully, and lay it in placing one tomato at a time. Shake the fruit down well, and fill the crates so as to have to press the laths down gently in nailing, so that the fruit may not move in handling. In using baskets, place the fruit in stem down, and fill the basket a little rounding. The large smooth

red is the most valuable variety for the New York market.

CUCUMBERS.

For field culture the "White Spine" is best. Pick the cucumbers when from four to six inches long, and pack them in bushel crates made the same as described under tomatoes. Pack tight, and keep out all crooked, gnarled, or yellow ones. They may also be packed in clean barrels, with holes bored in the sides, and covered with muslin or bagging to give ventilation.

GREEN BEANS.

Pick when the dew is off and the beans perfectly dry, and put in the shade a short time until they have lost the heat received from the sun. Keep out all bruised or decayed ones, and pack in bushel crates same as recommended for tomatoes. For beans, the laths on the crates must be closer together than for tomatoes. The beans should be young and tender when picked and snap when broken, as it will not pay to send them when too old to snap. They may also be shipped in barrels covered with cloth, and the sides cut or bored for ventilation.

GREEN PEAS

should be picked, handled, and packed the same as green beans.

CHERRIES.

There is none of the small fruits that require so much care and that is more difficult to get to market in good order than the cherry. They should be picked when perfectly dry, leaving the stems on, taking hold of the stem instead of the fruit in picking. Keep out all over-ripe and rotten ones, and keep the fruit spread out thin in the shade a short time to cool and thoroughly dry off. Put in crates made of two ends and a middle piece, four inches wide by 16 inches long, of $\frac{3}{4}$ -inch stuff. Make the sides with lath or thin boards, leaving sufficient openings for ventilation. Fill the crate full, and gently shake or press down the fruit. Mark the tare of the crate on one end. Cherries can also be put in long flat baskets holding about 25 pounds; these are covered with muslin.

GRAPES.

There is a greater variety of packages used for sending grapes to market than for any other kind of fruit. For a long distance, or where the cost would be too much for the return of the empty boxes, the best packages are small boxes holding from three to five pounds. These are made as light as possible, but strong enough to bear the handling and shipping. The boxes should be put in skeleton crates holding from 60 to 90. Of the small boxes, we think the Fairbanks and the veneer box of the "American Basket Co" among the best. The boxes should be packed from the bottom, first laying in a sheet of white tea-paper, then lay in the bunches keeping the stems up, and gently press the grapes close together. Fill the box so as to press them down solid, but not hard enough to mash the grapes. One crushed or bruised grape will ferment and spoil the whole box. Nail the bottom on the box, and put the label on the other side, so that that will be the side to open, and when opened will show a nice, smooth surface of fruit, with the stems hidden from view. Mark tare of crate on each end.

We think the long, flat, tight boxes holding about 30 pounds very objectionable, as they are liable to rough handling, and the fruit invariably comes to market mashed and bruised, and consequently will not command a fair price.

The very best way to send grapes to market

is in crates such as are used for forty-five pints of strawberries; those that have the corner-pieces on the inside are preferable. Flat boxes or trays are made that will easily fit the crates. The trays are so made that three will fill the crate. Each tray should have the shipper's name and also the tare marked on it. The crates should also have the tare of trays and crates marked on them. If the tares are not plainly marked on each package, we have a trouble when making sales to deduct the weight of the package. For want of knowing the tare, we are delayed in making returns of sales until the return to us of empty packages—which often gives great dissatisfaction.

Boxes with the covers hinged and furnished with a hasp are good packages for grapes. They should be made about five inches deep, fourteen inches wide, and twenty-two inches long inside; they should have the bottom put on with screws, so that it may be taken off and the box packed from the bottom. Put sheet of white paper in first, and then a layer of bunches, then a sheet of paper, then grapes, and so on, taking care that the bunches lie close together with the stems up. Pack so full as to make it necessary to press the bottom down gently to bring it to its place, thus compressing the grapes so that they will not move in handling.

Round paper boxes, holding three, four, or five pounds each, may also be used. In packing these, use a tin hoop of the same size and depth as the paper box inside. Place the tin hoop on the cover, and pack the grapes in the hoop, stem-up, and fill and gently press down; then put the box on and draw out the hoop; this will leave the grapes all tight and the stems out of sight when the box is opened. Pack the paper boxes in skeleton crates holding 12, 18, or 24 boxes each.

In gathering the grapes use care to not rub the bloom off more than can be helped. The best plan, if crates and trays are used, is to put the trays on a wheelbarrow and move along among the vines. In gathering, take hold of the stem of the bunch and cut off with a pair of scissors; at the same time trim out all unripe berries, and lay the bunch in the tray stem down. When the trays are full they require no further handling. Use care to put none in but good, fine clusters. The seconds should be shipped by themselves, or used up at home. After the trays are filled, put them in the shade to cool off before packing in crates. If to be packed in tight boxes, the grapes should be cut, carried to a cool, dry place, and allowed to lay about twelve hours to dry and wilt the stem, which will facilitate the packing and also prevent molding. If the stems are not dry when packed, and the boxes lie any length of time, the grapes soon become moldy, and the sale of them is spoiled.

NOTES ON ASPARAGUS.—"Trojan," Lansingburgh, N. Y., in commenting upon Mr. Helfrich's article on asparagus in the May number, says: "He might have added that the knives were better for being ground half-moon shape; that the easiest way to raise it was either in rows two feet apart, or in beds three feet square, with 14-foot space between, which allowed of the ground being plowed through both ways and the earth thrown on top of the square nice and evenly, so as to smother all the weeds; that the best way to sell it is by weight, so as to save the labor of bunching, which we find to be

one of the greatest expenses attending it; that brewers' hops, privy or blood, or very fine bone manure were the best, as horse-dung contains so many weeds that you can not get along, no matter how well rotted; that in warm weather it must be cut every other day, or else let grow up for good; that where salt can be procured cheap enough it is the great desideratum, as it will both kill the weeds and improve the asparagus."—"If 'Trojan' can sell unbunched asparagus, so much the better for him; but when one sends produce to the New York or any other market he must conform to the customs of that market if he expects to get satisfactory prices. If a lot of loose asparagus, or strawberries in the large trays used in Cincinnati, were sent to the New York market, they would probably find their way into the garbage-cart. The object of the articles by Mr. Helfrich is to let people at a distance know what is required in the New York market, and unless they can conform to this it will be better for them to seek a market near home.

Notes from the Pines.

A great deal has been written in prose and verse about the resplendent hues of autumn foliage, and, if I mistake not, spring flowers have had mention by the fine writers, but I do not recollect that any one has gone into ecstasies over

SPRING FOLIAGE.—Yet there is much in the varied hues of the just developing leaves to attract the observer who has an eye for the minor beauties of nature. The expanding leaves of the pear and those of the ash-leaved maple are both of a tender green, but quite unlike, and both are quite different from the near-by Virginia (more properly *Cladrastis*). Then just beyond is a Weeping Poplar, the young leaves of which are of a brownish green, *foncé* the French would say, as dark as the neighboring Ginkgo tree is lively. An artist would describe the foliage of this last-named tree as "gamboge green." Then a little nearer the house is a golden glow from the young leaves of what the nurserymen call *Spiraea aurea*, but which is only a bright-leaved variety of the well-known Nine-bark (*Spiraea opulifolia*). A little more at the right is the charming purple-leaved variety of the common Barberry, and still further along are the Purple Hazel and Purple Bush. These last-named are varieties cultivated for their colored foliage, but there is enough in the different shades of the young leaves of trees in their normal condition to make the effects of spring foliage worthy the study of the landscape gardener. I have alluded to the

WEeping POPLAR, which is one of the most desirable of lawn trees. Its branches are most decidedly pendulous. It comes out very early, the leaves hold on late, and all through the season its quivering foliage upon the drooping branches makes it a most enjoyable tree. This and similar weeping trees increase in height very slowly, and they are grafted upon upright stocks of some kind. The nurserymen graft all such trees too low. My poplar was grafted at about eight feet, but this is not high enough; the branches already sweep the ground. I am growing a Lombardy Poplar to a straight stem, and when it gets about fifteen feet or so high I shall graft it with the weeping variety, and hope for a tree worth having. I saw to-day that a neighbor had planted near his house a Weeping Ash, grafted not above six feet high.

This will always be a nuisance. I had heard much of the

DOUBLE LILY OF THE VALLEY, and at last procured a root. Now, after three years considering the matter, it has bloomed. It has only confirmed me in my belief that some flowers are not improved by doubling. Nothing can exceed the simple grace of a flower-spike of the ordinary Lily of the Valley. This double one is a miserable monstrosity, a burlesque upon the real thing, and I shall only grow it, as I do several other things, to show my friends what not to cultivate. Among the many things that dealers abroad praise "within an inch of their lives" it is gratifying to find now and then one that meets the expectations these descriptions have excited. One case of this kind is the

DOUBLE CRIMSON THORN.—This, if I mistake not, was sent out by Wm. Paul. At all events, I procured one five years ago of Ellwanger & Barry, who are sure to have all novelties of this kind. This is the first year it has consented to bloom. And isn't it a beauty! Imagine a handsome shrub eight feet high, and covered from top to bottom with clusters of miniature roses the size of a split pea, and you will have an idea of it. Nothing can be more charmingly beautiful. It is worth waiting for not only five years, but twenty-five years. You see, a few years more or less make but little difference to us old fellows if we get a good thing at last, and this Double Crimson Thorn is most emphatically a good thing. I am sorry they called it "crimson," as it is not, but a most charming full rose color. How I wish you could print in colors.

THE AQUILEGIAS OR COLUMBINES are favorite plants with me, and I have a fair collection of them, the queen of which is our Rocky Mountain Columbine, *Aquilegia cerulea*, the spurs to the corolla of which are very slender, and about two inches long, giving the plant an airy grace that none of the others possess. I go in early morning to the bed and find it all right; I go again at evening and find it all wrong. The beautiful slender spurs are broken, bent, and bedraggled, and half of the beauty of the flowers has departed. Master Eddie, whose young eyes are sharper than my old ones, detected the cause of the mischief. I watched the accused, and found the charge sustained. Right alongside stand a number of other Columbines, the spurs of which are short. Mr. Bumblebee—he is the chap—when he comes to the bed, goes directly for the center of the other Columbine flowers, but when he comes to the flowers of my favorite *cerulea* he makes no motion to get the honey by way of the natural opening. The cunning fellow knows that his tongue, proboscis, or whatever his honey-getting organ may be, can not reach into the two-inch spurs of my favorite, so, in a most business-like manner, Mr. Bumblebee goes at once to the outside of this flower, and cuts a hole near the end of the spurs from which to extract the honey. Insects don't reason? I don't believe it. If instinct tells that Bumblebee to operate in this way, I think it a great pity that some white folks were not endowed with instinct.

VINES AND SHRUBS still show the effects of the past winter, and even trees considered hardy are much retarded, and only to be saved by severe pruning. In a number of cases, the bark has burst and fallen away upon such hardy trees as maples and apples. Those things that still seem alive I let alone and wait. The havoc

among the grape-vines is something fearful. Those coarse things of Rogers', that one would think proof against a stroke of lightning, are badly killed. Indeed, the only entirely unharmed vine in my collection of some fifty is one of Dr. Wiley's South Carolina hybrids.

Garden Plans.

We do not publish many garden plans, for the reason that the plan should be made to suit the surroundings, and as these are seldom alike in two places—save twin lots—it is best for each to work out a plan to meet the particular case. A few general hints may not be amiss. Whatever else there is, let there be a plenty of turf. The humblest place can afford an expanse of grass, which if large is dignified by the name of lawn, and if small is called only a grass-plot. This gives an air of neatness if there should be no flowers, and if there are flowers, no matter whether costly or common, their appearance is many-fold enhanced by the turf-setting. Do not strive after anything elaborate and complicated. Recollect that the more elaborate the pattern, the greater will be the care required in keeping. Scroll, chain, and other borders look wonderfully well in print, especially if they are printed in colors. But these plans which are carried out in the favorable climate of England only by keeping a number of men at them all the time, would utterly fail with us, where one gardener is expected to do everything, and where in the majority of cases there is no gardener at all. Lay out only what can be well cared for from spring until frost. Circles, ovals, ellipses, and egg and "palm-leaf" shapes, neatly cut in the turf, are much better than anything more complicated. Avoid making beds with sharp points and acute angles. If one has only room for a single bed, as in a front-yard in town, he will get more satisfaction out of plants with striking foliage than with flowers. A circle edged with some of the silvery-foliated plants, such as *Centaureas*, *Cinerarias*, and *Artemisias*, then a row of *Achyranthes Lindenii*, and within this a center of some of the Golden Coleuses would be bright and showy all summer. This is only a suggestion, as the bed may be planted in a great variety of ways. A group of Cannas would give both fine foliage and flowers, and this may be edged with a row of *Gladiolus* with some low-growing plant upon the extreme margin. Very good effects may be produced with little expense by the use of annuals, among the most popular and best of which is *Phlox Drummondii* in its various kinds, from white to deep scarlet.

In laying out beds of any kind, recollect that every foot of path and every foot of margin implies a promise to keep the one clean and the other neatly trimmed. Unless there exist the ability and the inclination to do these, the beds had better not be laid out but the grass left unbroken.

Destroying Insects—Bellows-Syringe.

A large share of the time and ingenuity of the horticulturist is devoted to the destruction of insects, and he is quite sure to give a warm welcome to anything that promises him aid in this direction. Showering plants with insect-killing liquids has long been done by means of syringes, pumps, and the common watering-pot, but with all these the difficulty is to get the liquid so diffused as to touch all parts of the plant. When Mr. B. K. Bliss was in Europe a

few months ago, he came across a *Soufflet Insecteur*, which we may call a Bellows-Syringe, which seems to us a capital thing. Probably most of our readers know the perfume-sprinkler of the drug-stores, and the atomizer or spray-producer of the surgeons. The perfume-sprinkler is the simplest. Two glass tubes are fixed at right angles in such a manner that a stream of air from one will be blown directly across the mouth of the other. We all know that a strong wind blowing across the top of the chimney will cause a tremendous upward draft in the chimney. This sprinkler operates upon the same principle. If we put one of these tubes, securely fastened at right-angles, into a liquid, and blow into the other and horizontal tube, the blast of air going across the end of the upright tube will cause a partial vacuum in that, and the liquid will rise. As the liquid rises it comes in contact with the blast from the horizontal tube, and is divided into the minutest spray, liquid-dust if we may say so; or, as the surgeons say, it is atomized, a very bad word indeed. Instead of blowing through the horizontal tube, an India-rubber band is now used, by the successive compression of which the stream of spray is easily kept up.

An ingenious Frenchman, M. Pillon, has made this principle serviceable in horticulture. His blast of air comes from a bellows, his "atomizer" is attached to the end of the nozzle, and the liquid to be used is contained in a globular receptacle hung to the tube of the bellows in such a manner as to allow that to be held in any position without spilling the liquid. The liquid to be used is put into the brass globe and the bellows worked; a fine spray issues in such a copious stream that it is easy to reach every part of the plant and bedew it with whatever insect-killing liquid may be desirable. One great advantage of this apparatus is its economy. In the ordinary methods of treating plants with liquid insecticides a very large share is wasted, while with this only so much as is needed to just moisten the leaves and stems need be used. Carbolic soap and other preparations of carbolic acid, whale-oil soap, tobacco water, infusions of Quassia, Chamomile, and Pyrethrum (Persian Insect Powder), and solutions of salt, carbonate of ammonia, and aloes, or whatever may be found useful against any particular insect, may be employed. The inventor makes one very good suggestion, which is that these liquids should be sweetened with sugar or molasses, probably, although he does not say so, to cause their adhesion to the plant, and greater persistence. The engraving upon the next page shows the apparatus. The bellows is smaller than those used in kitchens, and the ball is about four inches in diameter.

The Climbing Buckwheat.

The Climbing Buckwheat, or, more properly, False Buckwheat, is sent to us so frequently for determination that we give an engraving of it. In some localities it is very abundant, but it can hardly be classed among the troublesome weeds. It inhabits low grounds, and is most abundant in localities too wet for cultivation. We always supposed it to be an annual, and never examined the root, but find the authorities divided upon this point. Its botanical name is *Polygonum dumetorum*—the Bush or Thicket Polygonum. The various Smart-weeds and Water-peppers belong to this genus, and Buckwheat and Dock are closely related to it. From the resemblance of our plant in both flower and

fruit to the Buckwheat, its common name, was, naturally enough, applied. It is one of the several climbing species of *Polygonum* (some with very rough stems), and is a vigorous grower, its twining stems running to the length of ten or twelve feet or more, and often completely draping bushes and brush-heaps with its broad, heart-shaped leaves, from amongst which arise the numerous loose and irregular flower clusters, which are some three inches long. The flowers are greenish, often edged with white or purplish, and in fruit the enclosing calyx has a broad white wing, which makes the plant conspicuous and not inelegant. It does not make much show until late in summer, being in perfection in August and September. The seeds are a favorite food of birds. Another species very like this, but smaller in all its parts, is the Black Bindweed (*Polygonum convolvulus*), which is often common in cultivated grounds, and sometimes troublesome.

Budding.

Grafting and budding are methods of propagating plants alike in principle but differing in detail. The most important differences are that in grafting we use buds of the previous year inserted into the stock with a considerable portion of the twig upon which they grew, and the grafts, being inserted early in the season, are expected to develop the same season. In budding, we use buds that have been formed the same year, insert them late in the season with as little as possible of the twig on which they grew, or none at all, and (in the case of fruit trees in all northern localities) we insert them so late in the season that we do not expect them to push into

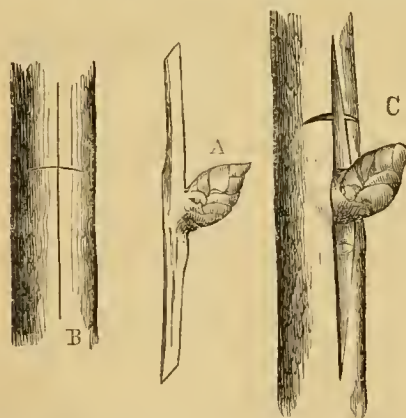


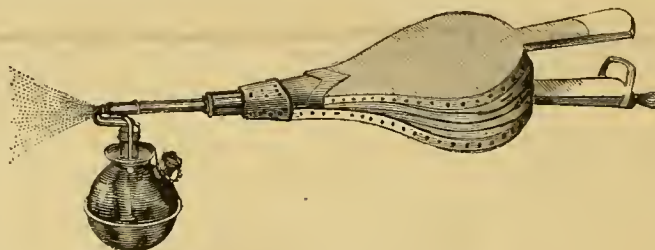
Fig. 1.—BUDDING WITH A CROSS-SHAPED INCISION. growth until the year following that in which they are inserted. We have numbers of letters asking about budding, as we do about those of other operations in horticulture. We can not, even to please our many new readers, repeat

these elementary matters at short intervals. In July, 1866, we gave a full illustrated account of the process of budding, which we think will enable any one to perform the operation with



CLIMBING BUCKWHEAT.—(*Polygonum dumetorum*.)

success, and we must refer our friends who have asked for instruction in budding to this article. Besides, in "Barry's Fruit Garden," a work which should be in the hands of every fruit-grower, this (and all other operations in fruit culture) is explained in full.



THE BELLows-STRINGE.—(See page 263.)

Budding, which is called in Europe "shield-grafting" and "bud-grafting," is performed at any time when well-developed buds can be procured and the stock is in active growth. For fruit trees, with us, it extends with the different varieties from July to September. In answer to the inquiry if a tree is better for being budded or grafted, we reply: If the tree is a good one, of clean, healthy growth, with whatever cutting has been done, whether in budding or in grafting, healed or healing over, it would make no difference to us by which of the two methods the tree was produced. Budding is sometimes called inoculating, a term which those who have received their ideas of inoculation from vaccination gives a wrong impression. Many think that something is by budding or inoculation introduced into the system of the tree which so changes its character that it will bear better fruit. This is an unfortunate error, and those who hold it should understand that budding is simply planting a bud from a tree that we know to be good beneath the bark of one that we either know to be bad, or, as is generally the case, know nothing about.

Referring to the sources already quoted for information about the ordinary method of budding, we give an account of two modifications

which are sometimes found useful, especially by nurserymen.

Several years ago we received from M. Charles Baltet, of Troyes, France, a copy of his "*L'Art de Greffer*," "*The Art of Grafting*," a completely exhaustive manual, giving every known method of grafting and budding, with copious illustrations. M. Baltet is an eminent French horticulturist, and this work of his is one of the most valuable in horticultural literature, and we are glad to know that it has been translated into English and published by Wm. Robinson, editor of "*The Garden*." We have received an advanced copy of the translation and are quite sure that a book of its value will

find its way into the stock of our publishers.

The modifications of budding to which we refer are to meet particular conditions. In some ornamental trees the bud is too large to be held conveniently inserted in the ordinary way of budding. In this case the bud is cut long, as in A, fig. 1, a cross-shaped incision made as in B, and the bud inserted as in C. Treated in this manner, the bud can be held by a ligature both above and below. This plan is followed in European nurseries with the chestnut.

The second method is with an incision just the reverse of the ordinary one. Generally,

the cross incision is made above the longitudinal one, but it is sometimes better to make it below, as in fig. 2, which shows the bud, the incision in the stock, and the bud inserted. This is used upon stocks where there is a flow of sap so great as to interfere with the union of bud

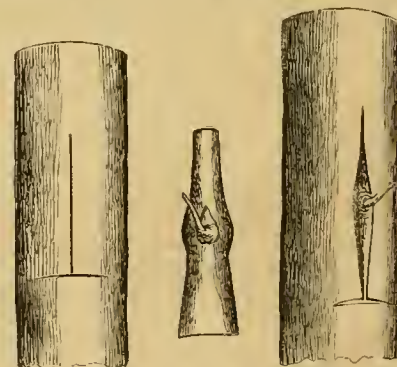


Fig. 2.—AN INVERTED T INCISION.

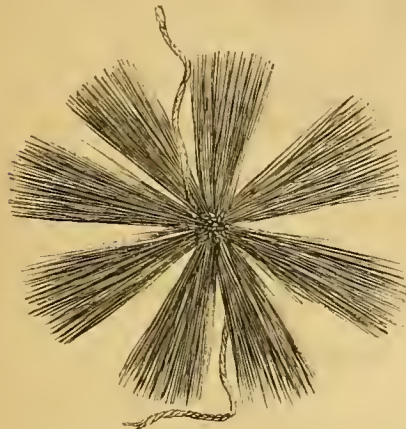
and stock, as in the maples in cold countries and the orange in warm ones. There are numerous other modifications of budding, for which we refer those desirous of learning all that is known about this kind of propagation, as well as grafting proper, to the book itself.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Use for Old Hoop-skirts!

DEAR MR. EDITOR: When some one—if not Gail Hamilton it might have been—discoursed some years ago on "The Depravity of Inanimate Things," she did not, if I recollect aright, cite the case of discarded hoop-skirts. I never fully believed in the indestructibility of matter until hoop-skirts became common. It is easy to get a skirt,



HOOP-SKIRT CHIMNEY-SWEEPER.

for you can go and buy it; but just try to get rid of one and see. You can't break it up, as it is too strong or elastic; you can't burn it, as it is steel; if you put it in a rubbish heap and cover it out of sight, it will some how get out and be found lying right across your pathway. Is there anything inanimate that one would not rather see than a cast-off hoop-skirt? The miserable, abject, bedraggled, and hopelessly useless thing will meet us everywhere—in the streets and lanes of cities, upon telegraph wires, and hanging to the branches of trees. It is about the only thing that a city rag-picker will not put in his bag, or that the suburban goat will not devour. The other day, as I was going along the street, I was almost tempted to exclaim, in the quack-medicine man's improvement upon the Greek philosopher, "The Eureka is at last found out." Yes, I have, if not discovered, learned, how old hoop-skirts can be made useful. A few days ago I saw some chimney-sweepers come out of a house, and they had with them an affair which I supposed at first was like that figured last month on page 219. As I came nearer, I found the thing had a strangely familiar look—lo! it was my old enemy converted into something useful, though, it is true, humble. The chimney-sweeping brushes were made of bits of hoop-skirt bound together in the form shown in the sketch I send you. A moralist might draw a lesson from the fate of the hoop-skirt; built for the purposes of false pretenses—that of distorting the human figure out of every shape naturally belonging to it—it finds at last its only usefulness in cleaning soot out of a chimney. I rejoice over this discovery. Who will tell of another use for old hoop-skirts?

CITY READER.

What to Do with Bleeding Wounds.

BY DR. J. T. ROTHROCK.

(CONCLUDED.)

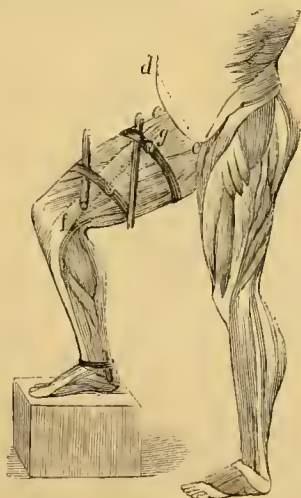
If we are called to do with hemorrhage below the groin, we have a ready way of stopping it by using the thumb or finger or the key just as we did behind the collar-bone, if the injury is so far up that we have no room to put on the handkerchief above the wound. On the figure, *c* points to the place of pressure. Draw in imagination a line, *d* *e*, from the most prominent anterior and upper portion of the hip-bones to the central bone of the

body, somewhat lower and in front. Now, just about the middle of this line is the spot to make pressure. If you do not succeed at first, move your finger to the right or left along the same line until you do. So certainly may bleeding be arrested there, and by the simple procedure I have indicated, that surgeons often resort to it when amputating a thigh high up.

Stretching between the letters *f* and *g* is a muscle known as the *sartorius*, which is the Latin for the "tailor's muscle." It is so called because it serves to throw one leg over the other—the favorite position assumed by tailors when at work. The term, however, would be just as applicable to the Turk, and we might just as well christen it the muscle of the Mussulmen. Allow the name to stand for what it is worth, but remember that along the line of the inner side of this muscle, about the middle of the thigh, lies the main artery, and that a handkerchief placed around the leg with the knot, large and fine, placed over the muscle will stop the arterial current, and of course any hemorrhage of that character at a point below. The hands on the thigh with stick included show just how and where to apply the pressure; only, in both arm and thigh, let the stick be more to the outside of the limb than we could represent in the figure, and you will get the pressure "at a better advantage."

For a cut in the foot, with arterial spouting, you may perhaps control the bleeding by making two thick, firm pads, two inches wide and long, and placing one in the hollow left on either side between the ankle and the large tendon coming up from the heel, and over the whole tying a band tightly above the ankle. If that fails, you may be sure that the bandage around the thigh will not. Sometimes firm pressure with the fingers over the top of the foot will stop the jet of blood from a cut artery nearer the toes, but it must be remembered that here there is a free union of arteries, and that even if you do compress the injured trunk on top of the foot the blood may come spouting up from between the bones.

The special cases thus far given relate to arterial bleeding alone, except that from the jugular vein.



HOW TO COMPRESS ARTERIES.

Remember that bright blood coming in jets is from an artery, and that the dark-colored blood which flows in a steady stream is venous. In the latter class, moderate pressure above the injury would only keep up the trouble, because the arteries being as a rule deeper seated would allow the blood to be driven through them from the heart, and the constricting band above would be sufficient to close the cavity of the superficial veins, allowing thus no escape for the blood on its way to the heart except through the open end of the vein. This is most plainly seen in the operation of bleeding, where when the proper pressure is made above the point of the intended cut, the veins stand out prominently, like little cords stretched along under the skin. They are gorged. Strike the lancet into one of them, and see how the purple tide will rush out; tighten your bandage firmly as you can, and

presently the blood will stop. You have not only compressed the vein between the cut and the heart, but you have compressed the artery between the heart and the veins; in other words, you have cut off the supply to the latter.

For venous bleeding, pressure over the cut, "to repair the leak," or the pressure of a soft cloth saturated with a solution of per-sulphate of iron, will often do you good service. So, too, will alum-water or even vinegar used in the same way be of service. Cobwebs have a reputation which has survived, no one can tell how many generations of doctors, for arresting flow of blood. Make a mass of them large enough to cover the wound, and thick enough to act as a pad, apply it to the cut, and it will soon entangle enough of the fibrin of the blood in its meshes to form a clot, through which further escape of blood is prevented.

Paleness of face, coldness of hands and feet, and a rapid pulse in one who has suffered from great loss of blood call loudly for stimulants, and in withholding them we may hasten a collapse from which no human aid can raise the patient. The intense thirst of wounded men on the battle-field is but an evidence of loss of blood, and the expression of the demand made by the system at large for more fluid to make good the deficiency.

Home Topics.

BY FAITH ROCHESTER.

HOUSEKEEPING AS A FINE ART.—Jean Ingelow sent a pleasant little letter from over the seas to the editors of "The Woman's Journal." She wrote to thank some unknown friend for sending her the "Journal," but she took occasion to tell American women that she wished they would study upon what seemed to her a very important problem—how to make housework attractive to cultivated women. She seemed to be under the impression that housework is nowhere so much despised as in America. T. W. Higginson, writing editorially in the "Journal" in response to "Miss Ingelow's Question," and writing as one who knows the culture and the customs of American society as well as any one, tried to correct Miss Ingelow's mistake about our women as compared with women abroad. He seems to think that New England abounds in excellent housekeepers, who rather pride themselves upon their capacity in that respect, instead of being ashamed of it. Mrs. Diaz portrayed this state of things in her late charming "Papers Found in the School-Master's Trunk."

In concluding his brief reply to Miss Ingelow, "T. W. H." said that with the rapid progress in the improvement of machinery, housekeeping might become a fine art in another generation; and he also suggested that one way of relief probably lay in the direction of association, some form of which, better than any yet known, doubtless awaited us in the future.

The author of "Woman in American Society" seems to have reached the same conclusions. Having said that "the prospect of deliverance by means of a supply of competent servants is but slight," and given her reasons for this belief, she says: "Deliverance must come, then, from a different source, if it come at all. Perhaps some feasible plan of co-operative housekeeping is to lift the burden from weary shoulders, and allow time for other work besides the mere elemental processes of cooking, washing, and sewing, which may be better done in combinations by professional hands. Perhaps machines for lessening labor will be improved and multiplied, so that what now requires two hours for its performance can be done in one. They have already accomplished much, and no one doubts that this is a mere tithe of what they are destined to achieve."

I recollect reading in the Christian Union Mrs. H. W. Beecher's account of her visit to the kitchen (and laundry, I believe) of the Parker House in Boston, where large capital makes kitchen labor easy and successful by the use of such perfect machinery as only large capital can employ. I be-

lieve she came to the conclusion that it was useless for our small households to expect to equal the perfection of cookery and cleansing done in such an establishment. It is clear that housekeeping can never become a fine art to many while it presses upon them as such a heavy and almost unbearable burden. The work of making and carrying on healthful and pleasant homes is second to no business, art, or profession. Its real beauty and use are hardly dreamed of yet, we are so swamped in the disorders that beset our common humanity. But the need of help in the household labor, and the growing home-sickness of everybody, demand and will bring some change for the better, and then housekeeping and home-making will go on with such joyful measure that housekeeping will not be drudgery but art.

MRS. BEECHER'S NEW BOOK.—Women will find an excellent companion in "Motherly Talks with Young Housekeepers," by Mrs. H. W. Beecher. These "talks" are upon a great variety of subjects, yet all properly within the "household" range. The "motherly" face itself, or a fine copy of it, appears in the front of the volume, and I join my thanks with those of thousands of women, I believe, for both book and picture.

It is one of the signs of the "good time coming" that so many good house and home books are being written. It is a very pleasant thing, I think, to have a gray-haired grandmother, like Mrs. Beecher, sit down and talk to us from out her large experience and observation about the cares and duties which surround and sometimes bewilder us, as they once did her. This book embraces eighty-seven brief articles on topics of home interest, and nearly five hundred recipes for cooking.

BEWARE OF CHILLINESS.—This may seem a strange suggestion for July, but it is not at all unreasonable. Many persons seem to suppose that they will keep warm without effort simply because it is the summer season, whether the weather is really warm or not. There are some cool rainy days and many cool evenings and mornings when a little fire adds greatly to the general comfort. It is also a wise sanitary precaution to take off the chill of the early mornings or cool evenings or rainy days by a small fire. Fevers, rheumatisms, and diseases of the bowels are often provoked by a slow, chilling process, when the weather is so moderate that no one thinks of building a fire or even of putting on more clothing. There are some excessively warm nights in July and August, but probably it is the case that on more than half of the evenings and mornings more clothing should be worn by children and adults than is needed between nine A.M. and six P.M. Light sacks and coats, for use at such times, should be in every one's wardrobe.

REST BEFORE EATING.—Call your men in to the dinner at least a quarter of an hour before you want them to sit down to the table. Then they can wash up and throw themselves full length on the piazza, or on boards in the shade (but not upon the ground), and get into some proper condition for digesting a hearty meal. They will relish their food better, it will "set" better, and they can work better all the afternoon in consequence of this rest, and they will not be half as likely to get sick right in the middle of harvest. Ten minutes of good rest before dinner is worth everything to a hard-working man. Everybody knows that a season of rest after dinner pays well, but it is not more important than the rest before eating if one is very weary. This rule is of the utmost importance to the "business man" or the person engaged in brain labor, and its violation is one of the chief causes of our national dyspepsia—this and the rapid eating that is customary. People of strong and unimpaired constitution (if any such can be found) may not feel how impossible it is for the body to carry on the business of digestion when greatly fatigued, or while it is being put to hard labor in some direction; but such is the case, and the health of our citizens is all the time being destroyed for lack of knowledge on this point. The stomach must have some vitality or nerve force to do its work with, and if the body has been using

this vigorously, with the muscles or with the brain, a little time should be allowed for gathering up its energies for the task of digestion.

[The foregoing was unconsciously dictated me by Mr. Rochester—and now he goes on.] "A cup of coffee—I've felt it myself and seen it in others—the desire to taste it before beginning to eat, just to gather up strength for the rest of the meal. The plate of soup at dinner answers the same purpose. It is like the water you have to put in a pump in order to start it. The soup is something that a hungry but tired stomach can take without effort, and at the same time it gives rapid refreshment, and ability to take hold of something more substantial."

[I hope that all this is correct, but I "can not be responsible," and Mr. R. was talking for my edification, without expecting to be reported *verbatim*. But as he has been reading Dio Lewis's late book on Digestion with considerable satisfaction, and certainly with profit to his own health, I like to write down what he said to me when I told him the "topic" I had just written down and then yawned sleepily. I am "much obliged" to him, and I hope you are sniled too.]

MORE ABOUT DRIED CORN.—Our Illinois friend is right. It does improve the corn very much to soak it a long time before cooking it. All the last winter we soaked ours over-night, and were fully satisfied that it is the best way. I did not attend to the drying of the corn last year. It was one of the self-imposed tasks of my "visitor" during my absence. She dried it in three ways—scalding some of it before cutting it from the cob, and cutting off some without scalding until she dried it rapidly in the oven. I did not discover which of these ways was best. A third way was to cut the corn through the middle of the rows and scrape out all of the pulp upon plates, leaving the more solid portion of the corn behind. This was dried in the oven, and it was excellent. Grandpa, whose teeth are poor, especially delighted in this, and he means hereafter to raise plenty of sweet-corn to be dried in the same way.

TO COOK GREEN CORN.—Many cooks boil their corn too long. If the corn will prove tender at all, it will be so after half an hour's boiling, and twenty minutes is usually sufficient. After it is done, it only loses in sweetness by longer boiling. Like all fresh vegetables, it should be put into boiling water to cook. Almost all people prefer to gnaw it directly from the cob, but it may be sliced off as soon as done and seasoned with cream and salt, or with a small piece of butter, salt, and pepper.

GREEN CORN SOUP.—Cut the corn from the cob, and boil the cobs half an hour. Take out the cobs and put in the corn, and boil it half an hour. Add half as much sweet milk as you have of the corn soup. Season with salt and a little pepper, and one or two eggs if you like. Let all boil up together, thickening with a little flour stirred smooth in milk.

SUCCOTASH.—It is customary to use one-third as much of beans as of corn. Lima beans are usually preferred, but any kind of fresh beans may be used. The beans require a longer boiling than the corn. Lima beans should be boiled an hour. More of the corn flavor will be obtained if the cobs are boiled with the beans for about twenty minutes before putting in the corn sliced from them. Season when nearly done with milk, cream, or butter, as you prefer, with salt, and perhaps a little pepper.

How to Cook a Beefsteak.

BY MRS. F. H. R., CHEROKEE CO., IOWA.

Don't look aggrieved, old housekeepers—you who know how to do everything. It is not to you I offer my suggestions, but to the young, inexperienced housekeepers who get nervous whenever a steak is brought into the house, especially if there are guests expected at table. Some time since, a complete encyclopædia of useful knowledge in human form became an inmate of our family. One doesn't expect a man to know everything—above

all, to be learned in all the niceties of cookery. Besides, women have an extreme prejudice against a masculine invader of those sacred precincts, her kitchen—that monster who is fond of lifting the covers from the steaming kettles on the stove, spluttering on industriously towards the dinner hour. She doesn't like to have her oven-doors opened and shut mysteriously, the bread rising in the tins critically examined, and her rolls of butter weighed in the balance of masculine criticism, to be found wanting without a lucid explanation of the whys and wherefores of the failure. Well, when this learned guest came among us, he proved so pleasant an exception to the above rule, that we consulted him as an oracle in many cases, and asked him one morning, "Would he not tell us or show us a better way to cook the steak for breakfast?" He took the thin, long-handled frying-pan from its nail, and putting it on the stove heated it quite hot. In this he put the pieces of steak previously pounded, but to my surprise did not put a particle of butter in the frying-pan, and did not salt his steak. He allowed the steak to merely glaze over, and then turned it quickly to the other side—turning it several times in this manner until it was done. Four minutes were not employed on the operation, but I think I never ate a juicier piece of steak. It was when done laid on the platter previously warmed, and was buttered and salted and set a moment in the hot oven. Allowing the steak to heat but a moment on each side helped it to retain all its sweet juices, and putting on the salt the last moment after it was on the platter drew out its juices.

Mosquito Guards.

The rest of the laboring man is not always sweet, notwithstanding the proverb. One of the greatest pests of the farm-house in summer is the mosquito, especially in the vicinity of water. For those who have the means to buy fine woven wire in elegant mahogany frames just fitting the windows, there is an easy defence against these pests. But mosquito-netting, which is very cheap, will answer all the purpose of the more costly article, and one who can use a jack-knife and a hammer can make a frame to fit the raised window. If one has a plane, they can be made of fine strips, an inch square, and nicely painted. These will last a great many years. But in the absence of suitable tools common lath will answer a very good purpose. Cut off two strips to fit the width of the window. Cut two more about eighteen inches in length for the uprights. Nail these four laths at the corners, making a frame to fit nicely into the window, and cover the frame with the netting. You have a complete mosquito-guard, and can sleep with open windows the rest of the summer.

Lemon Pies.—By Mrs. F. H. R.—Those delicately frosted, rich confections are loathsome affairs—but oh! our poor stomachs! Here is a recipe (if one is going to patronize lemon pies at all) which is really very nice, cheaper, and more healthful. For one pie: One egg; one-half a lemon, cut in very thin slices or grated; enough corn-starch to make a cupful of starch, made with boiling hot water as if for starching, or more if your pie plates are very large. Beat the egg with enough sugar to sweeten the mixture to taste. Bake with an upper crust.

Watermelon Vinegar.—By Mrs. F. H. R.—Perhaps it is not generally known that a very fine white vinegar can be made from the juice of watermelons. We had a very great quantity of melons last season, and, after we had cut out their crimson cores for eating, scraped the shells, from which we gained a large amount of juice. This we carefully strained, and put into jugs with small glass bottles in their mouths. We set the jugs out into the sun, and in time had a fine-flavored, clear, strong, white vinegar. The vinegar at a certain stage will be very bitter, but, when perfected, loses this and acquires a true vinegar taste.

BOYS & GIRLS' COLUMNS.

The Menagerie Prizes.

I was afraid that the boys and girls had all forgotten about the menagerie, but now—I write this on the last day of May—every mail brings "Doctor" letters by the dozen, so we shall have a merry number of contributors. I have told you before that this part of the paper is printed about ten days earlier than the outside sheets; in consequence, the announcement of prizes can not be given here. You must look over in the front part of the paper for them. Aunt Sue gives her report of the puzzle prizes this month; this takes up considerable space, but will interest so many that they will not miss the usual variety in the Boys and Girls' pages. THE DOCTOR.

More Prizes for Puzzlers!

BY AUNT SUE.

The task given you for the last prize competition, in February (the verse transposition), was simply to exercise your patience and ingenuity; now I propose to make you better acquainted with geography, so offer six more prizes (books) for the greatest number of rivers and lakes found in the name of any one mountain. For instance, in Jungfrau (a mountain of the Swiss Alps) may be found:

Una and Janra, rivers of Brazil.
Gran, a river in Hungary.
Jura, a river in Russia.
Gara, a river in Africa.
Grann, a lake in Anstrla.
And doubtless others.

You may select your own mountain (but it must not include the word "mount" or "mountain"). You must tell where the lakes and rivers are to be found (as above). You must not construct a name which has no geographical existence, or the whole list will go for nothing. You must send your letters on the subject to AUNT SUE, Box 111, P. O., Brooklyn, N. Y., and not to THE DOCTOR; and the lists must be all in before the 20th of next September. I can not now give you the *modus operandi* of deciding upon the relative merits of lists sent, but should there be several of equal merit the award of prizes will be decided by lot. Now get out your maps, geographies, and gazetteers, and go to work.

The Prize Result of the Transposition Trial.

Well, after sorting and sifting, first discarding the incorrect, then the disconnected and senseless, and those with merely the words and not the letters transposed—I had about forty pretty good sentences left. Then I weeded them out somewhat after this order: First, those with names or nicknames evidently made up or spelled to suit the occasion. Secondly, the ungrammatical. Thirdly, those with abbreviated words. Fourthly, the tautologous. Fifthly, the overstrained. Sixthly, those written in pencil. And, after using all possible care and impartiality, I have concluded to award the prizes to the authors of the first six sentences following:

1. "Mother-wit, let me not blunder
In the task I set me now;
Clear it is, I—silly—wonder
Can each earn his 'merit' now?
H. N. EVALINE."
(M. E. Lynch, Darien, Walworth Co., Wisconsin.)

2. "With violets strew the mead,
Winsome May, while here;
Linnet to linnets calls,
The Iris and Cuckoo are near.
Brent Inn. I. M."
(Miss A. Savinnc, Elkdale, Chester Co., Pa.)

3. "I think the words here written in this sentence
are all in Noah Webster's common dictionary.
WILLIE LEMUEL VAN TAME."
(J. E. Chadesyne, Box 65, P. O., Sing Sing, N. Y.)

4. "The monkey, horse, martin, crane, swallow,
nest, thistle, wine, violet, train, witch, bench, dirt, and
mice are all nouns. E. J. E."
(Kitty Clover, West 14th st., New York.)

5. "A wayside Inn. Welcome retreat in summer.
Listen in a rich meadow to the linnets' note vic with the
robin's call. H. L. KERN."
(No address.)

6. "Cheer the miserable; walk in wisdom; then
claim no merit, however wise. Listen to eternal truth,
and sin not. NINIE CLAY."
(No address.)

I know that many of you would like to see some of the other transpositions sent in, so I append several which

deserve praise, though they have a weak spot here and there:

1. "There let winter, nice in storm,
The nice walk and street adorn;
While at my sunnier home
Caunas vie with lilies' bloom."

2. "All hate men who, rich in sio, whose minds intent
on the crime, will strive to lead better men in a way
to seek clear ruin." L. S.

3. "In time men seek to win laurels which are worth-
less; are intent to save coin. Let them try in nobler
aim and wis. CHILDE." J. W.

4. "Behold the heaven eternal!
Worlds i' that realm unknown;
Each one in its silent circle
Tine its way in its own. E. R. MERIM."

5. "Transmit all those wicked Lehi Swannice letters
verbatim immediately on the new northern wire.
ANNIE NICHOLSON."

6. "This cot is nicer, sunnier, lovelier than that.
Now Ellen, Isabel, and Mertie may make it home this
cold winter. R. W. EWENN."

7. "How music charms the innocent;
How sweet in every kind;
While to an art all eminent
It soon will rear the mind. E. BEALER." W. T.

8. "On a scant heath in November,
Where a fawn twinkles, I lie;
A tinted moor lies seaward;
Mimi, list to the curlew cry. E. N. N."

9. "Summer weather, oh! how nice,
No more bitter sleet nor ice;
Little Winole mends her veil,
And with Clinty takes a sail. N. N."

10. "Winter has its charm. I like summer more;
then I will attend school and bear the little ones recite,
'an, boy, ion, new, view.'" M. M. V. A.

11. "Witty William Henry Smith smashed Catherloe
O'Connell's new Teutonic kite and neat silver thimble.
ENORA W. ORREN."

12. "Ida S. Blamell, come home with me! We have
snow and ice in winter. Sternly the teacher rules. It is
not in title nor in rank."

13. "Lill and Lilan were twin sisters; both have one
kitten; they are real cante. Their own mother's name is
Minnie C. McWinod."

14. "When I am older I mean to travel. Then I will
see many other countries. I want to be in Shire, Mech-
lin, Trent, and Sleswick." (This would be excellent but
for the indefinite "Shire.")

15. "In my travels I met a man who asked to escort
me at the show held in Cincinnati, where I turn to see
Ellen. WINNIE R. BRILL."

16. "All sensible merchants know that to live within
one's income leads unto wealth; we admire it in rich
men. IRENE TERRY."

17. "In miniature we see the man
In every mother's child;
One can not tell, I think, nor scan
What will be tame or wild. T. SNEERS."

That is all I have room for, but we have more very good
ones from Addie B., W. Turner, W. B., M. Blakelee,
L. T., Alice T., L. S. F., Minnie A., W. J. B., Charlie T.,
S. S. D., C. Turner, Mary A. E., Katie T., L. C. A., and
others. Those who tried, and got everything all wrong,
have my love and sympathy. AUNT SUE.

Aunt Sue's Puzzle-Box.

BLANKS.

(Fill the following blanks with words pronounced
alike but spelled differently.)

1. He — that the — was in the — enclosure.
2. We — up the — to the shore to see a man —
by some fishermen.
3. While there, we could — the —.
4. He gave the boy a —, and — him to get
some —.
5. The — was so severe that it might almost be
called a — of terror; we let the horse go where he
would, the — was useless.

E. M. WELLES AND V. S. PEET.

POSITIVES AND COMPARATIVES.

1. An article of food; a tool.
 2. A brook; an ensign.
 3. An animal; what vinegar is supposed to be.
 4. A dance; a wooden trough.
 5. A school exercise; a season.
 6. A color; a spring cushion.
- (Examples.—Cant; canter. Past; pastor.)

PI.

Na shirmaln, tingeme athrone, adeek lmh thsw adh
cobeem fo a tumula funder. "Aha! own, ym read
onehy" sawredne ch, "Dupdy saw dendmecon ot eb
andbeg, tub devas shi file yb gindy ni spinor."

CROSS-WORD.

My first is in balsam but not in myrrh.
My next is in lambs-wool but not in fur.
My third is in snow but not in water.
My fourth is in father but not in daughter.
My fifth is in roan but not in white.
My sixth is in day but not in night.
My seventh is in goat but not in flea.
My eighth is in branch but not in tree.
My ninth is in martin but not in teal.
My tenth is in salmon but not in eel.
My eleventh is in chart but not in map.
My twelfth is in blow but not in slap.
My whole is a city far in the West.
Now you can easily make out the rest.

WILLIE MASTERS.

PUZZLE.

(From a word of five letters get the smaller words
which are to fill the following blanks.)

An — who had been stealing some — and — was
sleeping on the ground when he was stung on the —
by an — which he had happened to — with his foot.

NUMERICAL ENIGMA.

I am composed of 9 let ers.
My 7, 5, 6, 9 one ought to do every day.
My 5, 6, 4, though an emblem of poverty, has a com-
mercial value.
My 8, 3, 1 is an animal.
My 8, 2, 5 is a pronoun.
My whole is much used in a school-room.

KITTIE M. E.

GOOD ADVICE.

E A E A L C E B R R E E V O E
R W V N U H B E I D V R E N P
A A I D F E Y B A E E O E H O
C Y R D R E S U P S N H P O H

ALPHABETICAL ANTHMETIC.

O M R) A S D C T L (D T M A

E O E

C O T C

C O D O

C O D O

C A T L

C E T L

C M M

TRANSPROSED PROVERB.

Never rent at the table.

ANSWERS TO PUZZLES IN THE MAY NUMBER.

CROSS-WORD.—Education.

CONCEALED FURNITURE.—1. Stove. 2. Cot. 3. Sofa.
4. Bed. 5. Bench. 6. Stool.

DOUBLE ACROSTIC.—

U— mcolen —S
N—ew Marke—T
I— ow —A
T— ren —T
E— lb —E
D—es Moine—S

ANAGRAMS.—1. Hospitalities. 2. Geometrical. 3. Con-
station. 4. Parenthesis. 5. Estimable. 6. Imperialist.
7. Conglomeration. 8. Circumvention. 9. Regeneration.
10. Magisterial.

PATCHES, CUTTINGS, AND FRAGMENTS.—1. Mosquito
(Moscow). 2. Elephant (Nat). 3. Monkey, donkey.
4. Centime (dine).

ELLIPTICAL SENTENCE.—Wright, write, rite, right.

NUMERICAL ENIGMAS.—1. All is not gold that glitters.
2. Mocking-bird.

A Peep at the Show.

About the time the leaves begin to appear the various
shows start out from their winter quarters, "take the
road," as the showmen call it, and go about the country
exhibiting at places fixed upon a long time in advance.
There are so many of these shows, that there is scarcely a
place of importance, in the older States at least, that
is not during the season visited by one or more of them.
Agents of various kinds go a week or more ahead of the
show, and select a ground for the tent, and engage food
for the animals and board for the men. Then the bill-
stickers cover the sides of barns, sheds, and fences with
the showy bills, giving in wonderful colors enormous en-
gravings of the wild beasts and other things to be seen
in the show. Each one is, according to the bills, greater
than any other show in the world. Then, on the day of
the show, nearly every boy feels that the whole thing is



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A PEEP AT THE SHOW.—Drawn and Engraved for the American Agriculturist.

done for his special gratification. Work, school, or whatever is his regular occupation is put aside for that day, for he must see the show. At last the sound of music announces the arrival of the procession. The band in a wonderfully formed chariot; the long string of cages, carefully closed; the trained horses; the astonishingly little ponies; and last, and best of all, the elephant—what would a show be without an elephant and monkeys?—make up a sight dear to juvenile eyes. Boys see the show in various ways; many are taken by their parents; others, who have been preparing for the event long in advance, take out their slowly accumulated stock of change and march into the inclosure with the air that shows that they intend to enjoy what they have earned,

and in one way or another every boy in the country round about sees something of the show. But there will be in almost every place a certain lot of boys to whom these quiet and honest ways of amusing themselves are not sufficiently exciting. You all know boys of this style, and when a melon-patch or an orchard has been robbed, or any other mischief has been committed, these boys at once come into the minds of the losers. It is just the same style of boys as those we saw crossing a stream on a birch-tree in last month's paper. If one of these young rascals can push by the doorkeeper in the crowd, or can slip under the edge of the canvas, he is sure to do so, as then he will have something to brag of for weeks to come. If the youngster of this pattern can

not "hook-in" in any way, he contents himself with such glimpses as he can steal in other ways. If, as sometimes is the case, a high fence forms a part of the inclosure, he is sure to find a convenient knot-hole, and if he can not see the whole show in this way he is content with a part. If he can get a peep into a shed or stable where the elephant is kept when not on exhibition, or where the ponies and spotted horses are being fed, he is better satisfied than if he had seen the whole in a regular way. Of course, a favoring knot-hole can not long be enjoyed by one boy; where there is one boy of this style there is sure to be more, and what happens when the rest find out about it is so well shown by the artist in the picture given above as to need no description.

WALTHAM WATCHES FOR 1873.

Write to us as follows:

HOWARD & CO.,
No. 222 Fifth Avenue, N. Y.
Please send me your Descriptive Price-List of Waltham Watches, as advertised in "American Agriculturist."

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You will receive it by return mail, and any Watch you select and order will be sent to you by Express for examination, and if you like it, you can take it and pay the bill.

LOW PRICES. NO RISK.
Every Watch Fully Warranted.
HOWARD & CO.,
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PION TARGET RIFLE.**
SMITH & WESSON REVOLVING, ADJUSTABLE-
BREECH POCKET RIFLE. SIX-SHOT. MAKES A
FINE TARGET.
BREECH-LOADING SHOT-GUNS.
SHOOTING TACKLE OF EVERY DESCRIPTION.
SCHUYLER, HARTLEY & GRAHAM,
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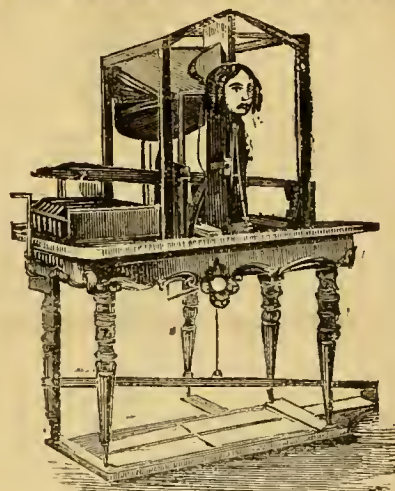
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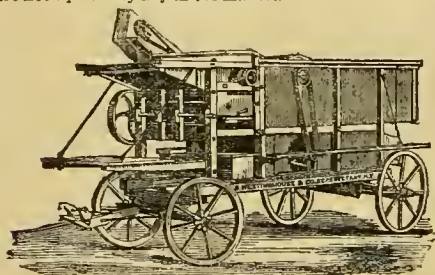
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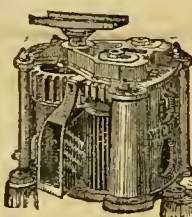
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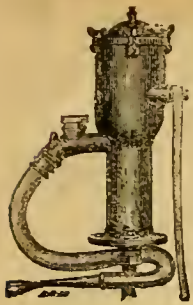
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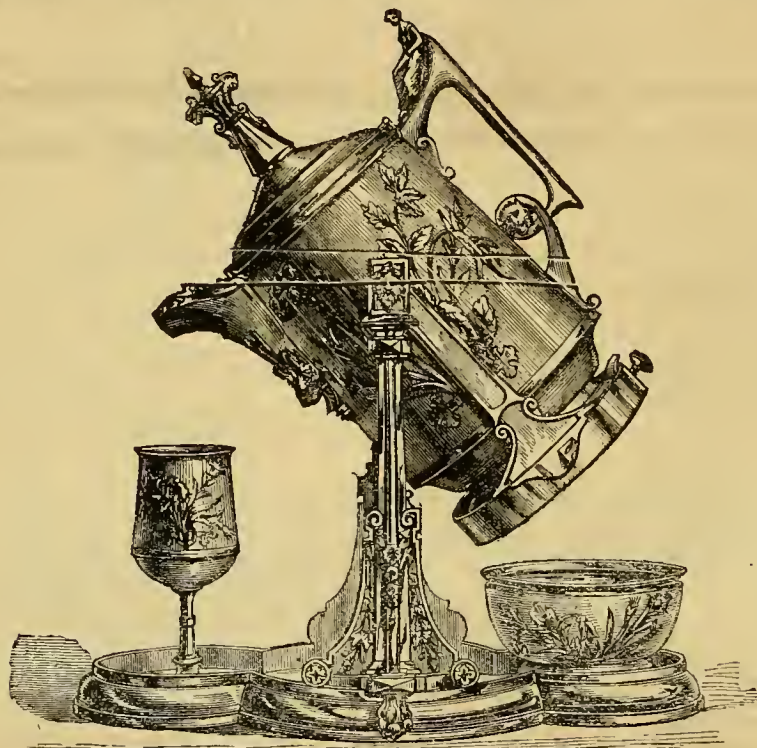
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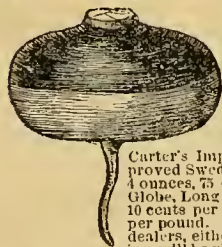
GEM PATTERN.

In every article they manufacture, of whichever class, they maintain the same high standard in design, quality, and finish for which their Ware has been so long and so justly celebrated.

Their goods can be purchased of most dealers in Silver and Plated Ware; also at their salesrooms,

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AFTER ONE DAY'S USE of the SUPERIOR HAY SPREADER no farmer will ever part with it.

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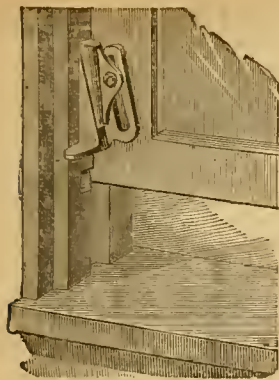


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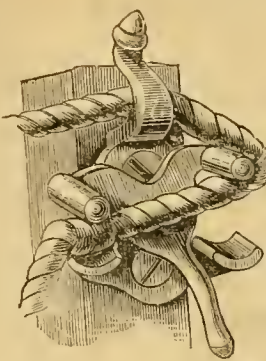
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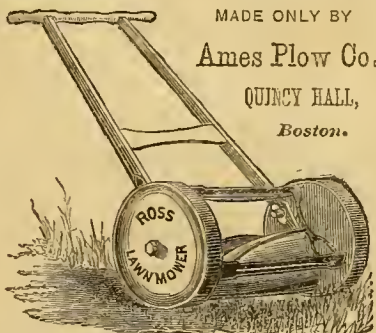
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We have a large number of letters from subscribers who have received the Chromos, expressing their delight in the possession of these beautiful pictures. We give below extracts from a few of these letters. The Chromos are delivered as fast as subscriptions are received.

"You can not conceive, nor I express, our sensations when your present was brought to our kitchen door, the other day, while we were seated at dinner, by an expressman. Anything more beautiful, more lovely, or more bewitching we don't believe it possible for mortal man to paint, print, or pencil upon canvas or paper. It is a perfect gem. In fact, we all (ten of us) were so delighted with the sweet little Strawberry Girl, that our dinner-table was entirely abandoned in our admiration. I have taken her with me to show her off to several of my friends, and could have sold her at any price, but I hadn't the heart to do it. But I informed them how to get one just like her; that satisfied them, and they let me bring my pet home again."

"Your Chromo of the boy and girl with Jack-o'-Lantern (Mischief Brewing) came to hand. I think it is a perfect beauty. Please accept my thanks for the Chromo and for your very valuable paper, that I have taken many years and shall continue to do so for years to come."

"I thank you heartily for Chromos of *Hearth and Home* and *Agriculturist*, which I received in due time; am well pleased with them."

"Your Chromos have come to hand, and are so far superior to what I expected that I was surprised, as I had been so gullied by publishers of the — with respect to their premium Chromos as to expect not much."

"Your Chromo, 'Mischief Brewing,' came to me at this bank. It gave the folks at home universal satisfaction. Thanks to you for your gift."

"'Mischief Brewing' arrived yesterday. I am greatly obliged to you for it; we are all very much pleased with it; think that it is all that it has been represented."

"They (the Chromos) both came safely, and are highly prized. The little 'Strawberry Girl,' more especially, has established herself among our 'household gods' as a silent but effective teacher of the good, the true, and the beautiful."

"You are truly doing a good work in giving these beautiful pictures away, as they please and refine all who see them. The whole house is in joy, for they give us great delight."

"The Chromos, 'Strawberry Girl' and 'Mischief Brewing,' have been received. All are delighted with them, being perfect beauties. The wonder is that you can give them away with the paper."

"It is (the Chromo) both nice and charming. Please accept thanks and best wishes."

"I think your beautiful Chromo very pretty, and it shall have an honored place in mamma's drawing-room."

"I believe the verdict of all who have seen it (the Chromo 'Strawberry Girl') is, it is worth all the Chromos that have come to our town as premium — with papers this season. I am more than pleased with it."

"'Strawberry Girl' just arrived. Am delighted with it. It is one of the prettiest Chromos I ever saw."

"Your beautiful Chromo, 'Mischief Brewing,' arrived safely by mail yesterday. I think it must be admired whenever seen, it is so truly excellent."

"Allow me to express my thanks for the receipt of the beautiful Chromo entitled 'The Strawberry Girl,' which, as a subscriber to the *Hearth and Home*, I have just received from your office. Such liberality on your part merits the hearty approval and support of all those who wish to extend the influence of so valuable a paper as *Hearth and Home*."

"Your Chromos are received, and we are exceedingly pleased with them. They are both beautiful."

"A few days ago I received the beautiful Chromo you sent me. We all admire it very much, and feel under many obligations for your kind donation."

"The Chromo, 'Strawberry Girl,' came to hand to-day in good condition, and affords us all satisfaction."

"Both Chromos received. I like them much. To furnish such inducements to subscribers I can not but think you are working altogether for glory—for profit there can be none."

"Your beautiful Chromo, 'Mischief Brewing,' arrived safely by mail. I think it must be admired wherever seen, it is so truly excellent."

"Your Chromos are received, and we are exceedingly well pleased. They are both beautiful, but we fancy the American picture. Please accept our thanks."

"The two Chromos, 'Mischief Brewing' and 'The Strawberry Girl,' were received in good order, and are really very pretty and well-finished pictures. They are far superior to the chromos issued by the —, which I received at the same time."

"The Chromo of the 'Strawberry Girl' came safely to hand this morning. It is the finest gift Chromo that I have seen (and I have seen all of the leading ones). The subject is splendid, just such a picture as I want in my parlor. It will not only all the hearts of my 'little chicks' with joy, but will afford my wife and myself great pleasure. Could I not duplicate it I would not take twenty dollars for it. You are doing a good work, a Christian work, in supplying so many homes with this 'thing of beauty.' Its presence can not but brighten every household, and make glad the hearts of all who behold it. One 'hearth and home' will remember with gratitude the generous donors."

"Your Chromo of the boy and girl with Jack-o'-lantern (Mischief Brewing) received this day. It is a perfect beauty. My three little boys and one girl are delighted with it—the coloring so soft, the scene so perfect and natural. Accept my thanks for the Chromo and for your very valuable paper, that I have taken many years and shall continue to do so for years to come."

"The Chromo is this day received, and gives the complete satisfaction. There were three or four gentlemen in the bank when the picture was exhibited, and all pronounced it fine. It gives you two new subscribers."

"The Chromo of *Hearth and Home* has arrived, and gives complete satisfaction and delight to all. The position of the little one is as natural as life, while her face is full of beauty, innocence, and expression."

"Our beautiful Chromo, 'The Strawberry Girl,' came several days ago, and we should have acknowledged its receipt ere this, only for want of time. We and all of our friends are delighted with the picture, and the general expression is, 'How can they afford to give so fine a picture?' Receive our sincere thanks for the Chromo, and best wishes for your paper as well as your own personal future good."

"'Mischief Brewing' arrived on the 3d, and immediately commenced brewing mischief, in that no one could properly attend to their work for looking at the Chromo."

"The picture alone, in my opinion, is worth three times the subscription price of *Hearth and Home*, and the latter is a mine of useful and entertaining knowledge."

"The sweet little 'Strawberry Girl' has found her way into our home and hearts. No one could declare the berries 'just paint, arranged to deceive,' for the pretty flushed face tells us plainly that the little lassie has just picked the berries, and is now ready to see how they taste. So natural is it, that I found myself exclaiming, 'How do you do, dear?' before I could realize that she couldn't answer back."

"Your premium Chromo has just been received. Well pleased with it. Thanks."

"I received the two Chromos, and am highly pleased with them; they were beyond my expectations. I am profoundly obliged to you for them. I will try my best now to get as many subscribers as possible."

"It does seem wrong for me to add to your labor by even reading this note, and I at first thought I would not do it. But I felt so mean to receive two such gifts as the Chromos of *Hearth and Home* and *Agriculturist* and not so much as reply with a 'thank you.' I could not stand it any longer since seeing the delight of my subscribers over their Chromo for the *Agriculturist*. Please forgive me for the time it takes you to read this, and the thanks I send with theirs for the splendid presents. 'Truly a thing of beauty is a joy forever.'"

"The premium you give with *Hearth and Home*—viz., 'The Strawberry Girl'—is at hand. I can not but return my most sincere thanks. It is the pride of our household; it is a perfect beauty."

"Your premium Chromo of the 'Strawberry Girl' for *Hearth and Home* came to hand by mail all right. It is beautiful beyond our expectations, and is really up to and beyond your description of it. We thought some little exaggeration might be allowed, when so many Chromos were in the market, and you had so many competitors. But in this, as well as in your premium Chromo for *Agriculturist*, the one half has not been told. We admire both hugely, and thank you most heartily for them."

"I take the liberty of trespassing on your time to thank you for the beautiful Chromo which arrived yesterday. We have taken your excellent paper more than thirty years, and in every case have derived many times its subscription

price in positive benefit. The picture I shall consider as a gift from you. Having spent the most of my youth on a farm, I can truly appreciate the spirit of the scene in every particular, and know that the sturdy and enterprising farmers of our country are but the matured mischief-makers of the picture. With many thanks, I am."

"I am bound to acknowledge reception of my beautiful Chromos. 'Mischief Brewing' came to hand several weeks since, 'Strawberry Girl' the past week—both in good condition. I am delighted with them; the best present I have received in a long time. Many thanks."

"Please accept my thanks for your beautiful Chromos, 'Strawberry Girl' and 'Mischief Brewing,' as premiums to the *Hearth and Home* and *American Agriculturist*. They are certainly very handsome."

"I received the Chromo, 'Mischief Brewing,' on the 8th inst. It has surpassed my expectations, being a gem of its kind."

"The beautiful Chromo, 'The Strawberry Girl,' arrived in good order, and please us all; even our nine-month-old baby crows with delight when he sees her sweet face."

"The two Chromos came to us in good condition. We think them very fine, and thank you for the pleasure we enjoy in looking at them."

"It is a lovely picture, and I thank you for it."

"The 'Strawberry Girl' arrived in excellent condition this afternoon. I am very much pleased with it, and thank you most heartily."

"We think the *Hearth and Home* Chromo is the prettiest one we have ever seen—perfectly splendid."

"The *Hearth and Home* Chromo is very fine, and the other very pretty and life-like."

"I have to thank you for the beautiful Chromo, received a few days since. It entirely exceeded my expectations."

"We are very much obliged for the Chromo, 'Mischief Brewing,' which came safely this afternoon."

"The Chromo of the *Agriculturist* has arrived, and we think it is very pretty."

"I have received the Chromo, the 'Little Strawberry Girl.' It is a perfect beauty."

"Mamma wishes me to say that 'The Strawberry Girl' has been put into a very handsome frame, and that it makes a very pretty parlor ornament."

"I received my Chromo the other day, and I am very much pleased with it."

"The picture premiums of the *Hearth and Home* are splendid; we admire them very much indeed."

"We think the Chromo which came with the paper is very pretty, for which we return thanks."

"I am the grateful recipient of the two beautiful Chromos, and embrace the very first opportunity of tendering to you my heartfelt thanks for the same."

"Please accept our thanks for the Chromo, 'Mischief Brewing,' received last week. We think it very pretty. Also, — wishes to thank you for the 'Strawberry Girl.'"

"The *Hearth and Home* Chromo has been received. Please accept a whole household's thanks. All are charmed, from 'the grudge man' down to the smallest lad and lassie. We are only sorry we did not subscribe for the *American Agriculturist* with *Hearth and Home*, and thus have secured, at your liberal terms, another good paper and another nice picture."

"We received the pictures—the 'Strawberry Girl' and 'Mischief Brewing'—lovely, and are delighted with them, and we wish to thank you for them. Not only are the pictures very beautiful and satisfactory, but all the family have become more interested in pictures of all kinds. We like both papers very much indeed."

"I received the *Hearth and Home* Chromo, and am more than pleased with it. As I am an old back, and do my own work out-doors and in, the picture will be a great ornament to my old shanty. I have been a subscriber to the *Hearth and Home* since you took charge of it and the *Agriculturist* since 1860. They are all the papers I take. I would sooner live on short rations than do without them."

"It is a very beautiful picture, and worth more than the price paid for the paper. Sending out so many fine gifts will certainly bring you thousands of new subscribers. Receive my sincere thanks for the Chromo."

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The success of that book has induced the author to publish a second one, which is now presented to the public, and in it will be found an extensive collection of designs, illustrating the features which go to make up structures, such as are needed to meet the wants of the American people.

What has been aimed at is this: To present a mass of architectural details, easy of construction, pleasing in form, and generally of an inexpensive character, and all so designed that a great variety of selections may be made from them, which, when combined in a building, will produce a harmonious whole; and it is believed by the author that this work will be found to be of value, and that its design is practicable, for there are hundreds of towns and villages, in all the States of the Union, in which the wants of the people continually demand the erection of buildings, largely of wood, and which in the hands of the builder and workman may be made elegant and pleasing in all their features, provided they have at hand a guide such as this book is intended to be.

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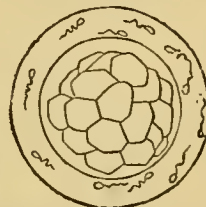
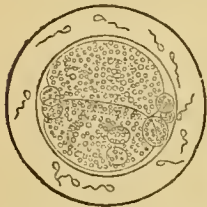
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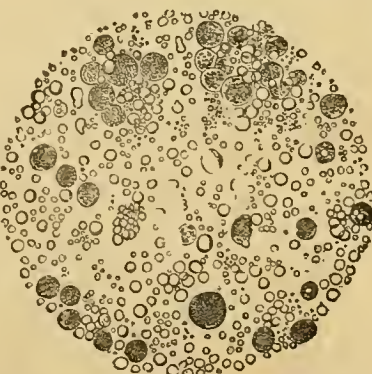
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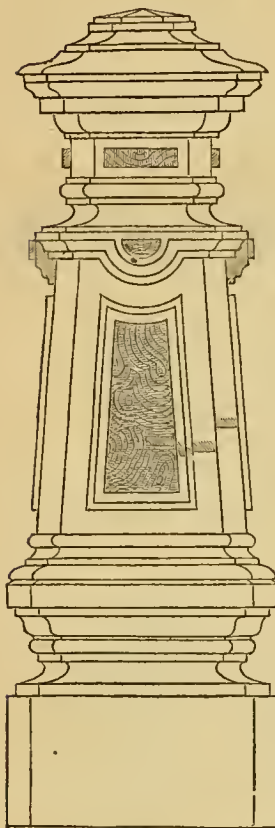
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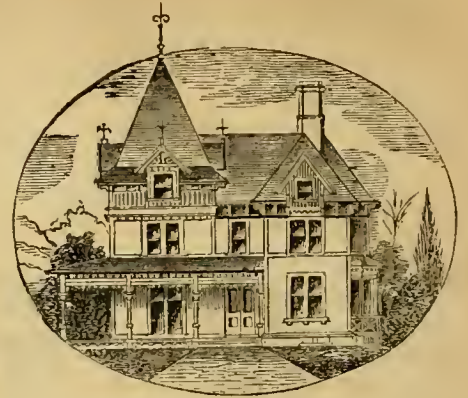
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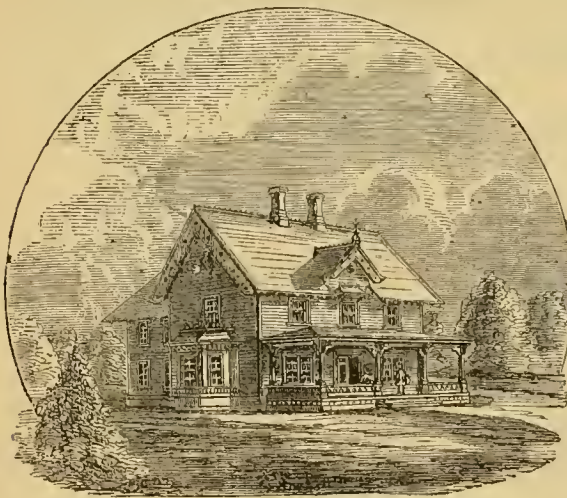
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" 39.—Two Designs for Stairs.
" 40.—Fifteen Designs for Newels, Hand Rails, and Bal-
usters.
" 41.—Design for Suburban Cottage.
" 42.—Details of Design, Plate 41.
" 43.—Twenty-six Designs for Architraves and Base, and
Seven Designs for Plaster Cornices.
" 44.—Six Designs for Plaster Cornices and Ceilings.
" 45.—Designs for Mantels and Mantel with Mirror.
" 46.—Design for One-Story French Cottage, with Tower.
" 47.—Details of Design, Plate 46.
" 48.—Design for a Swiss Summer House, etc.
" 49.—Design for Swiss Porch, Balconies, etc.
" 50.—Design and Section for a Two-Story Suburban
Residence.
" 51.—Details of Design, Plate 50.
" 52.—Designs for Street Fronts for Dwellings.
" 53.—Design for French Flat.
" 54.—Two-Story French Roof and Basement, arranged
for two families.
" 55.—Designs for One-Story Store Fronts.
" 56.—Designs for Store Fronts.
" 57.—Designs for Store Fronts.
" 58.—Fittings for Store.
" 59.—Fittings for Store.
" 60.—Designs for Banking Houses and Store Counters.
" 61.—Designs for Bank Counters and Office Screens.
" 62 and 63.—Design for Gothic Cottage, with Tower.
" 64.—Framing of Design, Plates 62 and 63.
" 65.—Design for Two-Story Cottage.
" 66.—Balloon Frame for Small Cottage.
" 67.—Frame for Gothic Fence.
" 68.—Frame for Small Double House, with Mansard
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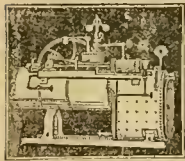
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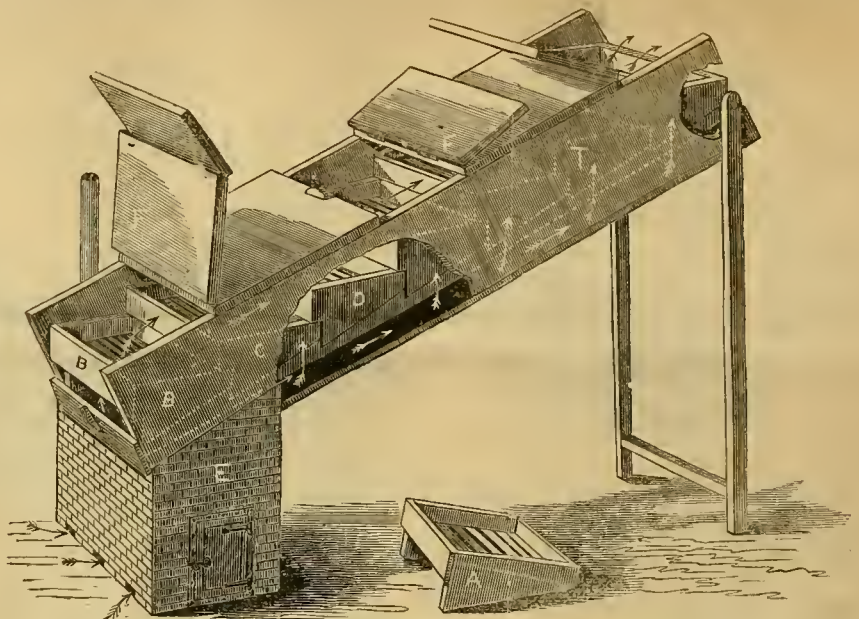
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VOLUME XXXII.—No. 8.

NEW YORK, AUGUST, 1873.

NEW SERIES—No. 319.



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AT REST.—Drawn and Engraved for the American Agriculturist.

The common deer is one of the few animals that will remain near civilization in spite of the huntsman. As the deer feed by night and keep hidden and at rest during the day, they

are rarely seen save by those who know how to hunt them. The engraving shows a young buck just in "the velvet," as the soft downy skin is called that envelops the growing horn.

In autumn the velvet becomes hard and dry, and is no longer of any use; so the animal stands forth in the full glory of a new pair of antlers, which, however, he will lose next winter.

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Calendar for August.

Day of Month.	Day of Week.	Boston, N. Eng., Mass., N. York State, Michi- gan, Wiscon- sin, Iowa, and Oregon.			N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken- tucky, Missou- ri, and Cali- fornia.		
		Sun.	Mon.	Tues.	Sun.	Mon.	Tues.	Sun.	Mon.	Tues.
1	F	4 52	7 20	11 11	4 56	7 16	11 18	5 0	7 12	11 22
2	S	4 53	7 19	11 45	4 57	7 15	11 49	5 1	7 11	11 51
3	M	4 54	7 18	morn	4 58	7 14	morn	5 2	7 10	morn
4	T	4 55	7 16	0 19	4 59	7 13	0 23	5 3	7 9	0 31
5	W	4 56	7 15	0 4	5 0	7 11	1 11	5 3	7 8	1 18
6	T	4 57	7 14	2 5	5 1	7 10	2 11	5 4	7 7	2 18
7	F	4 58	7 13	riese	5 2	7 9	riese	5 5	7 6	riese
8	S	4 59	7 11	7 49	5 3	7 7	7 45	5 6	7 4	7 41
9	M	5 0	7 10	8 22	5 4	7 6	8 19	5 7	7 3	8 16
10	T	5 1	7 9	8 45	5 5	7 5	8 47	5 8	7 2	8 45
11	W	5 2	7 8	9 14	5 6	7 4	9 14	5 9	7 1	9 14
12	T	5 3	7 7	9 39	5 7	7 3	9 40	5 10	6 59	9 42
13	F	5 4	7 6	10 4	5 8	7 2	10 7	5 11	6 58	10 10
14	S	5 5	7 5	10 33	5 9	7 1	10 37	5 12	6 57	10 41
15	M	5 6	7 4	11 7	5 10	6 58	11 13	5 13	6 56	11 18
16	T	5 7	7 3	11 43	5 11	6 56	11 54	5 14	6 55	12 0
17	W	5 8	6 59	morn	5 12	6 55	morn	5 15	6 52	morn
18	T	5 9	6 57	0 32	5 13	6 53	0 38	5 16	6 50	0 45
19	F	5 10	6 55	1 26	5 14	6 52	1 32	5 17	6 49	1 39
20	S	5 11	6 54	2 26	5 15	6 51	2 32	5 18	6 48	2 29
21	M	5 12	6 52	3 23	5 16	6 49	3 33	5 19	6 46	3 38
22	T	5 13	6 51	sets	5 17	6 48	sets	5 20	6 45	sets
23	W	5 14	6 50	7 34	5 18	6 47	7 32	5 21	6 44	7 29
24	T	5 15	6 48	7 55	5 19	6 45	7 54	5 22	6 42	7 53
25	F	5 16	6 47	8 14	5 20	6 44	8 14	5 23	6 41	8 14
26	S	5 17	6 45	8 31	5 21	6 42	8 35	5 24	6 40	8 35
27	M	5 18	6 44	8 54	5 22	6 41	8 57	5 25	6 38	8 59
28	T	5 19	6 42	9 17	5 23	6 39	9 20	5 26	6 37	9 23
29	W	5 20	6 40	9 42	5 24	6 38	9 46	5 27	6 36	9 51
30	T	5 21	6 39	10 14	5 25	6 36	10 19	5 28	6 34	10 25
31	F	5 22	6 37	10 55	5 26	6 35	11 2	5 29	6 33	11 8

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3d Quart.	4 11 57 ev.	11 45 ev.	11 33 ev.	11 21 ev.	10 51 ev.
New Mo.	22 8 46 v.	8 34 ev.	8 22 ev.	8 10 ev.	7 40 ev.
1st Quart.	30 11 4 ev.	10 52 ev.	10 40 ev.	10 28 ev.	9 58 ev.

AMERICAN AGRICULTURIST.

NEW YORK, AUGUST, 1873.

In August, as soon as the farmer has secured his crops, he ought to be able to take a vacation. We have a hard-working neighbor who was compelled to serve on a jury for ten days. He came back to his farm and his work as fresh as a horse that has had a month's run at grass. Previously he was somewhat despondent. He visited his city friends, and found that, like himself, they were not free from care and anxiety. He took courage. Life assumed a more cheerful aspect. He felt healthier, stronger, and richer. He was more satisfied with his lot in life. He mowed the grass in the front yard, and took more interest in his wife's flowerbeds. The corn and potatoes were treated to deeper and more thorough cultivation and an extra hoeing. Weeds were mown in the pastures, on the road side, and the fence corners. The suckers were stripped from the apple-trees. The cows were treated to a little extra food at milking time. Plenty of kindling was provided for the kitchen fire. The harness was oiled, the horses better groomed, carriages were washed, the bolts tightened, and the tires reset. On Sunday he was at church ten minutes before service commenced, and proposed to his children to stay to Sabbath-school. While others had a wilted look, and when addressed said it was "dreadful hot," he shook hands heartily and said it was "charming weather." That ten days' rest made him ten years younger. He renewed his youth. He put new life and spirit into all the labors of the farm. He did double the work, and did it twice as well, and had plenty of time to read the *Agriculturist* through, and is talking about subscribing for *Heath and Home*.

The truth is, he was a new man. He had worked and worried himself sick. He needed rest. Needed intercourse with his fellowmen. Needed to get his thoughts out of the ruts they had been so long running in. There was nothing the matter with his machinery. It was a little rusty. It needed cleaning and oiling and tightening the bolts. Little things fretted him. The failure of his wheat crop worried him until he could not sleep nights. The thought of paying his interest on his mortgage threw him into a cold sweat. The low price of

wool took away his appetite. He went to bed tired, and got up unrefreshed. He thought the bottom had fallen out of farming. He had made up his mind to sow nothing but Mediterranean wheat in future. Now he has concluded to give his fallow an extra plowing, to spread a little manure on it, and sow Diehl. He will not leave a weed in his corn field. He will ditch his low land and get out some swamp muck. He will thatch his hay-stacks. He will paint his implements and put up his machines. He will pickle his seed wheat to prevent smut. He will dip his sheep and lambs and tag them. In short, he will do, and promptly, whatever his judgment tells him ought to be done.

Hints about Work.

Modern Farming demands energetic work. We can not plod along in the old beaten track. We must have our wits about us; all our faculties must be bright and active.

We must Work Hard; but our work need not be for any great length of time of the back-breaking, muscle-straining order. This kind of work should be left to those who can not do anything better.

A Farmer should Study Himself. He should know his own strength. He can not do but a certain amount of work. He should be very careful not to waste his power.

The Coming Farmer will require more sleep and better food than some of the old-school philosophers recommended. He will eat more meat, and use more coffee and less tobacco and whiskey.

Energy is what a farmer needs. He must put more force, spirit, and pluck into his work. He must be wide-awake, and wake up those who work for him.

Look Ahead.—Let the work of to-day be well and promptly done; but, at the same time, lay plans for to-morrow. Harvest the crops now on the ground, but make such preparations as will insure better crops next year.

Winter Wheat needs better culture than we have been giving it. We must make the land richer, cleaner, and mellow. The better the variety the better land and better culture will it require. White wheat, as a rule, requires better land than red wheat. Red Mediterranean is probably one of the hardest varieties of winter wheat we have, and on poor and medium soils, with nothing more than ordinary cultivation, usually proves more profitable than white wheat.

Wheat after a Spring Crop, in nine cases out of ten, requires manure. The best artificial manure for wheat is probably Peruvian guano, say 200 lbs. per acre, sown broadcast, and harrowed in. Nitrate of soda, where it can be bought for 4c. or 4½c. per pound, is well worth trying, especially in connection with phosphatic guano or superphosphate. Sow 100 lbs. of nitrate per acre when the wheat is sown, and 100 lbs. in the spring.

Weeds—On many farms weeds spring up in wheat, barley, and oat stubbles by the million, and soon go to seed. It is a good plan to go over the field with a mowing machine. If the weeds are so far advanced that the seeds will mature after the plants are cut, rake them up with a wire rake and burn them.

All Stubble Land not seeded down should be harrowed immediately after harvest for the purpose of starting the weeds. Afterwards kill them with a plow or cultivator.

Cultivating Corn in August is one of our own practices which we do not indiscriminately recommend. We do it to kill weeds. We do not know that it benefits the corn; we are sure it is a benefit to the land. It is a disgrace to have a dirty corn-stubble. No farmer can hope to have clean land unless he has clean corn.

Pull the Weeds out of potatoes. Let no weeds go to seed anywhere.

Read Over "Hints" for Last Month. The season is so late that much July work will have to be done in August.

Hay will be very scarce next winter. In many

Fertilizer for Wheat.—"T. G." Kittels, N. C. There is no better manure for wheat than barn-yard manure plentifully applied, but the crop is in danger of being laid unless lime or salt is used in connection with it. Where barn-yard manure is not at hand some special active manure should be applied with the seed. The better the condition of the crop in the fall the better it will resist the changes of weather in the winter.

cases the second growth of grass and clover will be larger than the first crop, and will pay well for mowing. Cure the hay thoroughly, and save it for suckling ewes or new milch-cows. If, owing to bad weather, the hay can not be well cured, it is a good plan when mowing it away to mix some dry straw or old hay with it.

Thrashing is best done as the wheat is drawn from the field. But if you put the wheat in the barn and do not want the space, it is better not to thrash for two or three weeks, or until the wheat has "sweated." This is particularly true of barley and oats. All grain keeps best in the straw.

Do not Waste Straw.—Some of our best farmers thrash out-of-doors, and put the straw in the barn. As ordinarily stacked, one-third of the straw is often damaged. It pays well to take extra care to top off the stack so that the rain can not enter. We can not go into details. Keep the middle very full, and when finished *rake the top down smooth*. Be careful to fill up the hole where the man stood to remove the straw away from the carrier.

Animals require constant attention. See that none of their wants are neglected for a single day. A successful breeder must be a prompt, systematic, liberal, and provident man. It will not do to feed well one month and half starve the next. A few days' neglect will take off all the profit from a month's feeding. See Hints for last month.

Work in the Horticultural Departments.

The work in August is mainly in keeping the crops in growing condition by cultivating and destroying the weeds. At intervals there will be time in which to clear up around the fences and hedge rows. Many weeds make these their strongholds, and often rubbish is temporarily placed here as the most convenient spot which offers. See that all the cellars and storehouses are in proper order to receive harvested crops, and if repairs are needed attend to them before the fall work is pressing.

Orchard and Nursery.

In Marketing the early varieties of apples and pears too much care can not be used to prevent bruising the fruit during the gathering and transportation to market. The articles upon "Packing and Marketing Produce" that have appeared in several previous numbers, although they relate to small fruits, should be studied by every one who sends produce of any kind to market, as the general directions apply to all kinds. Each crate or package of fruit should have a uniform character, and only first quality fruit sent to market. Avoid breaking the limbs when gathering fruit.

Inferior fruit if sent to market at all should be sent as such and marked "seconds." Such fruit is often consumed at home to better advantage than to market it; while a bruised apple or pear may injure the sale of a crate, it is perfectly good for cooking or for drying. Where there is sufficient fruit to warrant its drying may be done to advantage. We commend to the notice of fruit-growers the "American Drier," an engraving and description of which were published by us in March last.

Budding.—Attend to this as soon as the bark separates easily and good buds can be had.

Seedlings will require shade during the hot, dry weather. Lath screens or branches of evergreens are suitable; these should be removed during showers. Collect the seeds as soon as ripe, and either sow at once or preserve until spring. Most sorts keep best if mixed with sand.

Insects which now infest fruit trees should be destroyed. Pick up all unripe fruit which falls to the ground, and feed to the pigs. Remove all late caterpillars as soon as they make their appearance. Borers must be probed out with a slender twig or cut out, and the wounds covered with grafting wax.

Mulching.—If trees set in the spring show signs of suffering remove the surface-soil, give a thorough watering, and apply a thick mulch of straw.

Fruit Garden.

The principal work here will be to market the fruit as it ripens, and should there be more than can be sold or used in the family, the surplus may be canned or dried for winter use.

Blackberries that are to be sold should be gathered before they become soft, while those for home use may be left until dead ripe.

Raspberries.—Cut away the old canes after the fruit has been gathered, and stimulate the growth of new canes by the application of fertilizers. Keep the weeds down by hoeing or cultivating.

Strawberries planted out now from runners which are well-rooted will bear a small crop next season. The old beds should be kept clear of weeds, and the runners clipped if not wanted for new plantations.

Grapes.—Pinch the laterals, and keep the growing canes tied up to prevent the wind from breaking them. If mildew makes its appearance apply sulphur by means of a bellows to the leaves. If rot appears among the fruit cut out all affected.

Dwarf Trees.—Remove all fruit of bad shape, and do not allow the tree to ripen too much fruit. Preserve the form of the tree by pinching.

Cordon Trees will need attention so that they may grow in good shape, and to effect this pinching must be followed up regularly and persistently.

Kitchen Garden.

In this department the weeds are the principal things which will need attention. The present hot weather will cause them to grow very rapidly, and there will be danger of smothering young plants unless care is taken to remove the weeds as soon as they appear. Collect seeds for the ensuing year of such sorts as have matured, and store them in a dry, airy place. There are many kinds of seeds that the market-gardener is careful to raise himself, as he knows that by proper selection he can keep his "strain" not only good, but improving. There are also many that the farmer and amateur gardener should save; but with those kinds that are readily "mixed" or modified, such as melons, the kinds can only be kept true by planting the sorts at a distance from others, which can not be done in small gardens.

Asparagus will only need to be kept clear of weeds. Should new beds be needed, gather the seeds as they ripen and sow at once, or in spring.

Beans.—String-beans may be sowed down for winter use. String and break the pods as for cooking, and pack in jars or firkins with alternate layers of salt and beans. Nip off the tops of the lima-beans when they reach the top of the poles so as to hasten their maturity.

Beets.—Thin and hoe often, and if there are spaces in the rows some of the thinnings may be used for filling up. The leaves should be cut back before setting the plants.

Cabbages and Cauliflowers.—Clear up after the early crop. Destroy the slugs and caterpillars if any make their appearance upon the late plants.

Carrots.—Keep the ground loose between the rows, and thin out if too thick.

Celery.—Set out plants in rich ground for late crops. The early crops should be earthed up.

Corn.—Run the cultivator between the rows until the corn is too large to admit of it. As the early plantings are picked, cut the stalks and cure for winter fodder.

Cucumbers.—Save the best and earliest fruit for seed. Gather for pickles as soon as of the desired size, and salt down.

Egg-Plants.—Place straw or pieces of board around the plants to keep the fruit from touching the soil. Draw the earth around the stems, and keep the ground well cultivated.

Lettuce.—Sow for fall crop in a shady place if possible, and when of suitable size transplant to good, rich soil.

Melons.—Turn the fruit occasionally as it approaches maturity to insure a regular ripening. Remove all fruit not likely to ripen before frost.

Onions.—Gather as soon as ripe; this will be shown by the tops falling over. After being thoroughly dry, store in a dry, cool place, taking care not to lay them so thick that they will decay.

Potatoes.—Where the ground has been cleared of the early crop, it may be plowed and sown with flat turnips or any quickly maturing crop. Potatoes used in the family are best if dug each day.

Radish.—Sow Chinese Winter the last of the month for winter use.

Squashes.—Cultivate as long as possible, and pull out all large weeds. Look out for insects, and destroy them. Let the vines root at the joints.

Sweet-Potatoes.—Keep the vines from rooting at the joints, and hoe up all weeds.

Tomatoes.—Tie up to stakes or trellises, and cut off all unnecessary growth. Destroy the "Tomato-worm" whenever found.

Turnips.—Thin Ruta-bagas when large enough, and sow the round variety in vacant places.

Flower-Garden and Lawn.

The most important consideration this month is weeds. It is easy to write—indeed we have written it—"let not a weed be seen," but how difficult it is to carry out the teaching. When we think a bed or border is perfectly clean, some rascally weed that has in its early stages sheltered itself under a plant will show its head in defiance. Not long ago we visited a place that has the reputation of being the best kept of any in the country, and we must own to a malicious sort of satisfaction at finding here and there a weed. Weeds in flower-beds are not difficult to keep under, but

Weeds in Lawns are a trouble. Frequent mowing soon disposes of the annual ones, and the perennials under this treatment, being generally broad-leaved, are so weakened that the grass soon crowds them out. In England they have a contrivance that lets down a few drops of sulphuric acid into the heart of a plantain or other weed, and is said to be effective in exterminating them.

Beds in Lawns must have the edges frequently cut or they will not be well defined and the grass roots will run in and injure the plants. A sharp spade run down deeper than the grass roots extend is the best implement for trimming. The beauty of

Ribbon Planting or any other ornamental work of the kind depends upon keeping the colors in well-defined lines. The plants as they grow will encroach one upon another, and unless the knife be freely used the effect of the contrast of distinct colors will be lost.

Dahlias are largely stick and string, for if not kept well supported they will break down just at the time when they ought to bloom. It is often necessary besides the main stake to supply smaller stakes to the larger branches.

Chrysanthemums should not be neglected during the summer. Pinch into shape, and keep clear of insects. Caterpillars and plant-lice will do much injury if not prevented.

Roses.—The Chinas and Teas are to be cut back as fast as they bloom. The Remontants will often flower in fall if the plants have not been weakened by the depredations of insects.

Fuchsias do best in a partial shade, and are more satisfactory grown in pots upon a veranda than when bedded out. They must not be allowed to suffer from dryness. Cuttings of the young shoots root very readily.

Gladioli will need stakes to their flower stems or they are apt to bend with their own weight and grow crooked. As soon as a spike is out of flower cut it away. The same remark applies to

Lilies which are especially apt to become top-heavy. They are subject to attacks of a small white caterpillar that eats the underside of the leaves. We have never found them too numerous to remove by hand-picking.

Seeds should always be saved from the choicest flowers, and all clusters not wanted for seed should be removed as soon as their beauty has passed.

Propagation by cuttings is sufficiently described on page 302.

Greenhouse and Window-Plants.

If new houses are to be built or old ones altered or repaired it should be done while there is plenty of time, and not postponed until the houses are likely to be wanted. The heating apparatus will need overhauling to see if it can go through another winter without repairs. Supplies of loam, leaf mould, decayed turf, and sand, are to be laid under cover for winter use, and orders sent for the needed stock of pots. Camellias and other evergreens from the greenhouses will need especial care in shading and watering this month, and all greenhouse plants that are set outside should be cared for. If not properly protected they may be thrown over by high winds or they may be attacked by slugs and insects or injured by dogs and cats. Plants in the border which it is intended to repot should not be allowed to grow out of shape: an occasional pinching will prevent this.

Commercial Matters—Market Prices.

Gold has been as low as 115, and as high as 117½—closing July 12th at 115½, as against 117½ on June 12th. The arrivals of Breadstuffs have been on a liberal scale, especially of Wheat, Corn, and Oats. The bulk of the receipts of Wheat and Corn consisted of inferior grades, which were pressed for sale, and depressed in price. The demand was active, mostly for export, at the ruling figures, and at the close the market exhibited more steadiness. The later receipts of Grain were in improved condition, particularly of Corn. Oats have been selling freely, and have been quoted firmer toward the close. Rye has been difficult of sale, and much cheaper as to values. The want of freight room checked the export purchases. Winter Wheat has been exceptionally dull and unsettled in price. A lot of 500 bushels new crop White Maryland was received and sold (on Monday, July 7th) at \$2 per bushel—bought by a local miller. Quality strictly prime. The Flour market closed stronger and more active. In the provision line there has been a livelier movement noted, with a generally firmer market. Cotton has been quoted higher, but closed tame and drooping. Hay has advanced sharply, on a reduced stock and good demand. Straw dull and irregular; supply ample. Hops have been very quiet within the previous range. Seeds have attracted very little attention, yet have been quoted steady. There has been a fair business reported in Tobacco, in good part for export, at generally unaltered figures. The Wool trade has been very dull. The movements in the local market since our last have been unusually light. Holders have not been eager to place supplies, especially of domestic, prices of which have been quoted about steady, though the inquiry has been quite limited. The offerings consisted mostly of foreign stock, values on which rather favored purchasers.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending July 12th, 1873, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats.
23 d's this m'th. 321,000 3,366,000 2,891,000 257,000 51,000 1,803,000
25 d's last m'th. 313,000 2,627,000 2,712,000 103,500 75,000 828,000
SALES. Flour, Wheat, Corn, Rye, Barley, Oats.
23 d's this m'th. 385,600 3,391,000 3,655,000 211,000 2,623,000
26 d's last m'th. 305,000 2,912,000 2,776,000 166,000 35,000 1,637,000

2. Comparison with same period at this time last year.

RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats.
23 days 1873. 321,000 3,366,000 2,891,000 257,000 51,000 1,803,000
27 days 1872. 369,000 1,567,000 6,908,000 69,000 111,000 1,616,000
SALES. Flour, Wheat, Corn, Rye, Barley, Oats.
23 days 1873. 385,600 3,391,000 3,655,000 211,000 2,623,000
26 days 1872. 156,000 1,928,000 5,571,000 158,000 54,000 2,066,000

3. Stock of grain in store at New York.

Wheat, Corn, Rye, Barley, Oats, Malt.
bush. bush. bush. bush. bush. bush.
July 7, 1873. 286,193 1,358,354 83,461 562,927 229,113
June 9, 1873. 126,531 1,381,891 4,273 13,797 102,044 197,651
May 5, 1873. 218,223 585,233 27,360 46,764 276,666 181,396
Apr. 7, 1873. 488,904 866,207 55,519 83,080 666,293 178,332
Mar. 10, 1873. 621,197 2,513,892 37,302 293,493 816,596 106,362
Feb. 10, 1873. 895,261 3,189,195 30,831 408,931 959,131 173,100
Jan. 13, 1873. 1,177,330 4,429,921 44,739 531,651 1,997,187 175,805
Dec. 9, 1872. 1,315,925 5,673,730 51,665 624,331 1,608,565 215,333
May 8, 1872. 1,015,353 197,393 211,563 18,632 1,115,022 89,117

4. Exports from New York, Jan. 1 to July 10:

Flour, Wheat, Corn, Rye, Barley, Oats, Peas.
bbls. bush. bush. bush. bush. bush. bush.
1873. 658,482 6,877,615 6,513,315 199,676 19,226 17,578 53,030
1872. 418,680 4,202,576 11,967,765 366,829 22,556 17,215 115,066
1871. 938,831 8,193,157 4,834,572 43,018 83,796 14,889
1870. 880,636 7,951,103 164,168 65,734 9,788
1869. 675,059 6,969,268 1,18,849 68,596 42,257
1868. 431,663 2,956,522 4,041,602 153,093 89,363

5. Receipts at head of tide-water at Albany each season to July 1st.

Flour, Wheat, Corn, Rye, Barley, Oats.
bbls. bush. bush. bush. bush. bush.
1873. 52,200 3,576,700 8,518,100 293,100 22,200 810,400
1872. 52,200 1,692,800 6,516,600 203,100 401,500 1,561,200
1871. 75,700 4,328,300 4,258,000 46,300 1,000 999,600

CURRENT WHOLESALE PRICES.

	June 13.	July 12.
PRICE OF GOLD.	117½	115½
Flour—Super to Extra State	\$5 70 @ 8 00	\$4 85 @ 25
Super to Extra Southern	5 30 @ 11 25	5 25 @ 20 50
Extra Western	6 30 @ 11 00	5 90 @ 20 50
Extra Genesee	8 10 @ 10 50	7 35 @ 20 25
Superfine Western	5 30 @ 6 00	4 85 @ 5 50
RYE FLOUR	4 10 @ 5 90	4 25 @ 5 35
CORN-MEAL	3 35 @ 3 50	3 15 @ 3 75
WHEAT—All kinds of White	1 70 @ 2 00	1 65 @ 1 85
All kinds of Red and Amber	1 20 @ 1 85	1 20 @ 1 65
CORN—Yellow	63 @ 65	58 @ 60
Mixed	50 @ 60½	47 @ 58
OATS—Western	42½ @ 51½	43 @ 53
State	45 @ 55	45 @ 53
Barley	60 @ 95	78 @ 82
Barley—Bale, 100 lbs.	70 @ 1 40	60 @ 1 70
Straw, 100 lbs.	50 @ 1 10	60 @ 1 10
COTTON—Middlings, 100 lbs.	19½ @ 20½	20½ @ —
Hops—Crop of 1872, 100 lbs.	35 @ 50	35 @ 50
FEATHERS—Live Geese, 100 lbs.	63 @ 85	63 @ 85
SEED—Clover, 100 lbs.	84 @ 9	84 @ 9
Timothy, 100 bushel	4 25 @ 4 40	4 25 @ 4 40
Flax, 100 bushel	2 25 @ 2 40	2 40 @ 2 60
SOAP—Refined & Grocery	1½ @ 9½	6½ @ 9½
MOLASSES, Cuba, 100 gal.	18 @ 42	18 @ 41
New Orleans, 100 gal.	55 @ 60	60 @ 65
COFFEE—Rio (Gold)	18½ @ 19½	— @ —
TOBACCO, Kentucky, &c., 100 lbs.	7 @ 15	7 @ 15
Seed Leaf, 100 lbs.	9 @ 15	5½ @ 75
WOOL—Domestic Fleeced, 100 lbs.	45 @ 57	26 @ 56
Domestic, pulled, 100 lbs.	32 @ 38	30 @ 48
California, clip	16 @ 35	16 @ 35
FALLOW, 100 lbs.	8½ @ 8½	7½ @ 8½
OIL—Coke, 100 ton	36 50 @ 39 50	35 50 @ 39 00
PORK—Mess, 100 barrel	16 62½ @ 16 75	17 50 @ 17 75
Prime, 100 barrel	14 @ —	13 75 @ 14 00
BEEF—Plain mess	9 00 @ 11 00	7 50 @ 10 50
LARD, in tins, 100 lbs.	8½ @ 9	8 @ 9½
BUTTER—State, new 100 lbs.	20 @ 25	19 @ 31
Western, 100 lbs.	15 @ 25	15 @ 25
CHEESE	7 @ 14½	6 @ 13½
SQUASH, 100 crate	— @ —	2 75 @ 4 50
BEANS—100 bushel	1 75 @ 2 00	1 50 @ 2 30
PEAS—Canada, free, 100 bu	1 15 @ 1 35	1 00 @ 1 10
EGGS—Fresh, 100 dozen	19 @ 22	19 @ 23
POULTRY—Fowls	3 @ 18	14 @ 18
Turkeys, 100 pair	11 @ 18	12 @ 18
Geese, 100 pair	— @ —	1 50 @ 3 50
Ducks, 100 pair	75 @ 1 50	75 @ 1 25
TURNIPS—per bunch	— @ —	2 @ 3
CABBAGES—100	2 00 @ 12 50	5 00 @ 8 00
ONIONS—100 bbl.	4 50 @ 5 00	6 50 @ 7 50
BROOM-CORN—100	3 @ —	3 @ 9½
APPLES—100 barrel	1 00 @ 3 75	2 50 @ 7 00
POTATOES—100 bbl.	1 50 @ 3 25	2 50 @ 8 00
SWEET POTATOES—100 bbl.	4 00 @ —	— @ —
CARROTS—100 bbl.	3 50 @ 4 00	— @ —
PEACHES, 100 crate	— @ —	3 50 @ 6 00
CRANBERRIES—100 bbl.	2 50 @ 4 00	— @ —
KALE, 100 bbl.	75 @ 1 00	75 @ 1 00
CHERRIES, 100 bushel	6 @ 15	4 @ 15
GOOSEBERRIES, 100 bushel	— @ —	4 00 @ 6 00
STRAWBERRIES—100 quart	5 @ 18	25 @ 25
CURRANTS, 100 bushel	— @ —	8 @ 18
RASPBERRIES, 100 quart	— @ —	15 @ 60
BLACKBERRIES, 100 quart	— @ —	12 @ 20
TOMATOES, 100 crate	50 @ 75	50 @ 75
GREEN PEAS, 100 crate	2 00 @ 2 50	— @ —
" per bushel	3 00 @ 5 00	1 50 @ 4 50
RUTABAD—100 doz.	2 00 @ 3 00	15 @ 25
RADISHES—100 doz.	1 00 @ 2 00	50 @ 57
SPINACH—100 doz.	1 50 @ 2 00	10½ @ 11½
CUCUMBERS—100 doz.	1 50 @ 3 00	1 50 @ 3 00
LETTUCE, 100 doz.	3 00 @ 4 00	— @ —
STRING BEANS, 100 bbl.	3 00 @ 6 00	2 50 @ 5 00

New York Live-Stock Markets.

WEEK ENDING	Beef, Cows.	Cattle, Sheep.	Swine.	700 L.
June 15	8,734	75	4,707	24,995
June 22	10,638	56	4,472	24,954
June 29	8,992	41	4,053	31,113
July 7	8,872	82	4,179	17,889
Total for 4 weeks.	37,224	256	17,391	94,015
do. for prev. 4 weeks	35,755	312	17,105	73,637
Average per Week.	9,306	64	4,348	23,504
do. do. last Month.	8,884	7	4,279	18,409
do. do. prev. Month.	8,991	94	3,993	18,362

There was a large supply in the early part of the month of common and unimproved cattle, which were in little demand; the quality the last week improved. Prices advanced the 1st week, and declined the 2d and 3d weeks, closing same as 3d, but firmer. The Texans were largely deficient in fat and flesh, and declined during the month from 9c. to 11½c. to 8½c. to 10c., the closing price.

The prices of the past four weeks were:

	Range.	Large Sales.	Aver.
June 16	8 @ 13½c.	11½ @ 13½c.	11½c.
June 23	9 @ 13½c.	11½ @ 12½c.	11½c.
June 30	8 @ 13½c.	10½ @ 11½c.	11 c.
July 7	8½ @ 13½c.	10½ @ 11½c.	11 c.

Milk Cows.—The supply of cows has been light, with little inquiry; sales slow, at \$20 @ \$35 for ordinary; \$40 @ \$60 for fair to good; \$65 @ \$80 for choice.

Calves.—Both live and dressed veals have sold fairly during the month when good, with prices slightly changed. Poor veals are not in favor, selling slowly. Quotations: Live, good, 8c. to 9½c.; common and grassers, 3c. to 5c.; dressed, 3c. to 9c. for poor to good, 10c. to 14c. choice.

Sheep and Lambs.—With dull markets and low prices during most of the month, we close with light supply, better feeling, and advanced prices. Spring lambs have been in demand, and sold fairly. Quotations: Sheep, 4½c. to 6½c.; lambs, 10c. to 12c. **Swine.**—Little activity and limited transactions in live hogs have been the general features of the markets for the month. Dressed hogs have been very irregular, closing firm at 6½c. to 7½c.

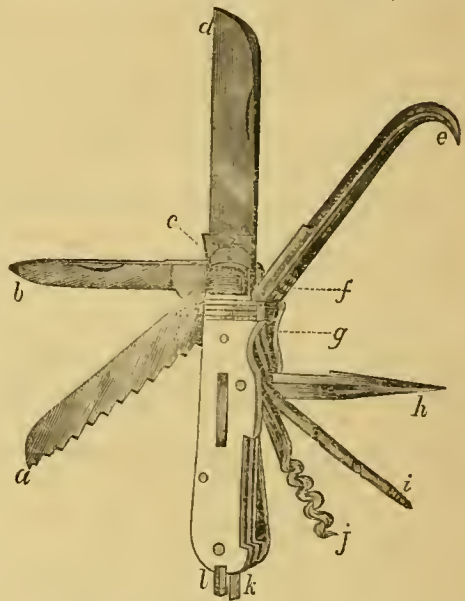
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THAT FOR ONLY 75 CENTS

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We invite all parties not acquainted with our valuable paper to try it for six months, from July to December. Subscriptions will be received for that time at seventy-five cents each. Almost daily we hear the remark that some item in the *American Agriculturist* is worth far more than a year's subscription (\$1.50.) Please understand, we will send it for six months beginning July '73, for 75c. Of course this does not include the beautiful chromo "Mischief Brewing," which is offered to all yearly subscribers free when taken at 245 Broadway, twenty-five cents extra when sent prepaid. Try it six months or a year.

SPECIAL PREMIUMS STILL OFFERED.



MULTUM IN PARVO KNIFE, OPEN—WEIGHT 2 OZ.

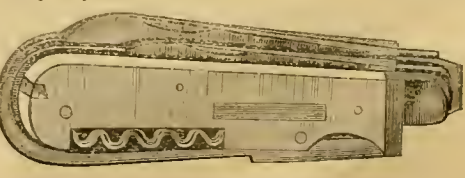
The General Premium List closed July 1st. The following Special Premiums are continued until further notice:

The Multum in Parvo Knife for 8 subscribers to *American Agriculturist* at \$1.50 each a year; or 5 subscribers to *Heath and Home* at \$3.00 each a year; or 6 subscribers for one year to both the above papers at \$4.00 each a year. (Knife sent post-paid.)

The Beckwith Improved \$12 Sewing Machine for 16 subscribers to *American Agriculturist* at \$1.50 each a year; or 8 subscribers to *Heath and Home* at \$3.00 each a year; or for 9 subscribers to both papers at \$4.00 each a year.

To secure the Chromos, mounted and prepaid, 25 cents must be remitted with each subscription for *American Agriculturist*, and 50 cents with each for *Heath and Home*.

N. B.—Two half-year subscribers in all the above cases may count for one full year in a Premium Club List, but no Chromos are given to half-yearly subscribers.



MULTUM IN PARVO KNIFE, CLOSED—3 inches long.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.**.....**Post-Office Money Orders**, for \$50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Hearth and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Hearth and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$3.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$8; making a club of 20 at \$1 each; and so of the other club rates.

Plants by Mail.—Sometimes, though not often, our friends in ignorance of the law include their letters with specimens sent for mail. Whenever written matter is sent with specimens, letter postage is due upon the whole. Those who send notes or letters under cover of plants or printed matter are liable to a heavy fine should a post-office clerk chance to discover them.

Fairs, Fairs.—Our list of fairs will be published in September. We will thank officers of Agricultural Societies and Fair Associations of all kinds to send their programmes at once. Those that reach us later than August 12th have but little chance of getting in.

Writing for the Agriculturist.—Those who wish to write for the paper, and inform us that if we will "send them a list of subjects" they will provide us articles, are informed that we have no need of their services. We have each month enough matter to make up two or more papers, and we can not bother with persons who need to have subjects suggested to them. To those who send us concise and practical articles, that we consider worth publishing at all, we pay current rates, provided we use the material. We have no occasion to go to novices for "filling." The plea often made that the writer is needy, while it touches our sympathies, has no effect whatever upon our decision upon his or her article. Whatever we give in the way of charity is not given to paying for poor articles merely because the writer wants money. Those who send articles must expect them to be judged upon their merits, and all preface as to the past history of the writer is so much labor thrown away.

An Excursion.—A party of gentlemen, some of them connected in various ways with the agricultural and horticultural press, and others who go for the fun of it, have started on an excursion for the far west. They will visit Texas, the Indian Territory, Utah, Colorado, etc., and will be gone about five weeks. The *Agriculturist* has a representative with the party, and should anything noteworthy happen our readers shall be advised of it. The youths who make up the party are under the protection of the venerable Mr. Williams of the *Horticulturist*, who will probably give them a great deal of ride for their money.

Grass for an Orchard.—**"H. K. W.,"** Whitfield Co., Ga. The best grass for an orchard is Orchard Grass (*Dactylis glomerata*). Probably red clover would be found a more suitable plant to seed down with, and by feeding it down with hogs the soil would be fertilized, and the fallen wormy fruit consumed.

Varieties of Wheat.—**"C. R. S." Greeley, Colorado.** It is impossible to recognize a sample of

wheat by name merely from the seed. Change of locality and climate is sufficient in a very short time to alter the character of the grain, and even the stem and chaff, so that it can no longer be identified. This so frequently and conspicuously occurs that it has given rise to statements that wheats imported from a distance have become mixed with the native varieties. This has occurred in our own experience so prominently that it became a matter of study and investigation to discover why a white wheat should in a few years become almost exactly like the old Lancaster red, when natural mixing of varieties is an improbability. Since then we have seen wheats which have become much lighter in color by change from a heavy eastern to a lighter dry western soil.

Gypsum Mills.—**"J. A. W.,"** Hutchinson, Kansas. The season for preparing gypsum for fertilizing purposes is the early spring or late winter. We have prepared an engraving of a mill for stamping and grinding gypsum, which at present we have not room for. We shall endeavor to elucidate this matter in season.

Cactus in Sitting-Rooms.—**Mrs. "J. M. S."** The term Cactus is a very comprehensive one. Some, like the Crabs-claw Cactuses (*Epiphyllums*) are winter bloomers. The majority of them need rest during the winter, and to be kept in a warm room with only just enough water to keep them from shrivelling. In spring they will start a new growth and push out flower-buds.

Thrashing Machines.—**"H. F. W.,"** Flatstone, Md. The two-horse tread-powers and thrashing machines of Wheeler, Melick & Co., are very suitable for a farmer with 100 to 200 acres, or for a job thrasher. They may be loaded upon a common wagon, and unloaded in a very short time, and are to our mind easier upon the horses than the lever power. With a similar machine we have thrashed 150 bushels of wheat, or 250 of oats in a day with four hands. A farmer who keeps but one pair of horses and owns one of these machines is independent of outside help, which is a great point, and on the whole we would recommend them in the above-mentioned cases in preference to the larger machines.

Apple Corer and Slicer.—Very perfect machines for paring apples have long been in use. We now have in the "Climax Apple-corer and Slicer" another valuable invention. By means of this an apple has its core removed and is neatly sliced "as quick as a wink." This ingenious invention is by D. H. Goodell, 55 Chambers st., N. Y., to whom we refer for particulars.

A Curious Variation in a Peach.—In September last (p. 312) we gave a note from W. C. Masters, Barren Creek Springs, Md., describing a peach-tree, one branch of which produced much earlier fruit than the rest of the tree. We this year received (July 9th.) specimens from this tree, that from the early branch being quite ripe and of good quality while fruit from the other portions of the tree was not half the size and perfectly green. It will be worth while for Mr. M. to propagate from this precocious branch.

Oyster Shells for Manure.—**"S. D. S."** Burn the oyster shells rather than grind them.

Eating the After-Birth.—**"H. Z.,"** Frederic Co., Md. There is no occasion to allow a cow to consume the after-birth. It may be that nature impels her to thus dispose of it for a good reason. We can not say as to that, but being repulsive we have never permitted it, and no harm ever resulted. The cow previously to calving should be removed to a stall distant from the other cows, where she is undisturbed, and there fastened by a strap and head-stall, or a chain cattle tie. This gives her ample room to lick the calf, which instinctively comes and keeps close to her.

Rose Cuttings.—**Mrs. "J. M. S.,"** St. Charles, Mich. Cuttings of perpetual roses should be made of the present season's growth after it has somewhat matured. When new leaf buds have been formed at the base of the leaves is the proper time to take cuttings. We do not understand your question about aquariums.

A Horse Record.—**H. Desilver & Co.,** Philadelphia, Pa., publish a record and receipt-book for those having stallions at service. We have the testimony of one of our noted breeders that these books are well arranged and useful. They are certainly important to those who care for accuracy in pedigree.

Reducing Bones.—**"H. W.,"** Crawford Co., Pa. Where the acid (and the bones) can be procured cheaply, it might be worth while for a person who is used to handling such a dangerous material as the acid to attempt to make his own superphosphate. But generally it will be found costly, troublesome, and

dangerous to the person and his clothing, so that on the whole it would be more profitable to burn the bones and reduce them to powder, and spread the powder upon grass land at the rate of 250 pounds per acre.

SUNDRY HUMBUGS.—We read about suicides, murders, railroad accidents, and the like unpleasant things being "epidemic" at particular seasons. It appears to us that particular humbugs are epidemic in the same sense. One month our badget shows that dealers in "querc" are prevalent, when there is a general attack of lottery, and so on. This month the health report is uncommonly good; there are sporadic cases here and there, but no form of humbug shows a tendency to become epidemic. We have this time more cases of

USELESS RECIPES than of anything else. We have, in former years, shown up the utter folly and worthlessness of the recipes that are sold, and the business has been quite dead for a long time; but of late it seems to have revived..... There is a concern in Marion, Ohio, that offers the most tempting inducements for agents to sell "Family Rights" to make "Poor Man's Golden Butter," "Excelsior Honey," "Genuine American Spavin Cure," etc. For \$1 these chaps sell a right to make a "compound warranted to cure any and every kind of spavin that horses are subjected to, and do it effectually." Here is a wonderful secret which, if it only would cure spavin, would be cheap at a hundred thousand, going for a paltry single dollar. Let these Marion folks go to any large stable in New York and cure five or ten cases of "any and every kind of spavin," and their fortune will be made. They will not have to be screeching through their circulars for agents to sell their "discovery" in the form of individual rights..... "Golden Honey," which may or may not be the same as the "Excelsior Honey," can be made by A. Coulter & Co.'s recipe, which is to be had for \$1. As C. & Co. do not put their address upon their business documents, our customers will not know where to send their dollars; so we will publish the "Family Right":

Soft Water.....	6 pounds.
White or Brown Sugar, Moist.....	20 "
Pure Bees' Honey.....	30 "
Cream Tartar.....	80 grains.
Essence of Roses.....	24 drops.

. Mix the above in a brass kettle; boil over a charcoal fire for five minutes; take it off; and add the whites of two well-beaten eggs; when almost cold add two pounds more of bees' honey. A pint of the decoction of slippery elm bark of the consistency of cream will improve the honey if it be added while cooling." The syrup made by this process is harmless enough, but it is not honey. Not harmless, however, is the

FRENCH BURNING OIL, for which these same A. Coulter & Co. sell "Family Rights," which are, indeed, *family wrongs*, for every one who uses this Burning Oil does so at the constant risk of the safety of the family and the house. The recipe to make a similarly pernicious thing was sold a few years ago as the "Sunlight Oil," and in that, as well as in this, the chief ingredient is that most dangerous of fluids, benzine. In both cases several useless articles are directed to be added to the benzine, in order to convey the impression that it is in some way changed; but all this hugger-mugger leaves the benzine just as dangerous as it was before. Here is the "PROCESS OF MAKING THE FRENCH BURNING OIL.—NOT TRANSFERABLE.—40 gallons Benzine, Specific Gravity 40 Degrees, 3 lbs. Whiting, 3 oz. Sweet Spirits Nitre, 3 oz. Spirits Ammonia, 1 oz. Camphor Gum, 4 oz. fine Salt. Draw off from the barrel 6 gallons, pour in a tub first add whiting and salt, dissolve the Camphor in a bottle, well shaken, add to the six gallons in the tub, stir the whole for five minutes, after settled dip off carefully into the barrel."

—This precious recipe does not tell what is to be done with the Sweet Spirits Nitre and the Spirits of Ammonia. They might as well be thrown out of the window for all the effect they would have on a barrel of benzine. This recipe differs from that for the Sunlight Oil in one important particular—that contained *raw potatoes*, and this does not. Now, all this mixing and maddling with the benzine is sheer nonsense, and it remains the same inflammable, dangerous liquid as ever; and one who knowingly uses it for illumination is on the direct road to suicide or murder, or both. Yet the scoundrels who sell this recipe have the effrontery to state: "The above is known as the French Burning Oil, and excels all others as a safe, cheap, and lasting Oil it can not be equalled." These chaps were, at last accounts, operating somewhere in Michigan. They could be indicted for getting money under false pretenses, and we advise any community where they may offer this wicked recipe to make the place too hot to hold them.

THORLEY'S CATTLE FOOD Has been before the public for several years, and has sold largely in England. A concern in Portland, Me., George Stinson & Co., "Art Publishers," issue a circular the object of which is to induce agents to undertake the sale of an engraving called "The Mother of Our

Lord," and at the same time to sell "Family Rights" to make "Artificial Hooley," "Oriental Balm for the Complexion," "Japanese Egg Preserver," and various other things, among them "Thorley's Patent Feed for Horses, Cattle, Swine, Poultry, Sheep, etc." Stinson & Co. claim in this circular to have purchased of Thorley's Agent in this country at an immense price the right to introduce the Food in any part of North America. Mr. T. L. Harrison, Secretary of the N. Y. State Agricultural Society, writes us: "On hearing of this (Stinson & Co.'s offer to sell rights), I sent a copy of their certificate and recipe to Mr. John Thornton, in London, and requested him to show it to Mr. Thorley, whose address I did not know. I inclose also Mr. Thorley's reply, denouncing the thing as a swindle." Mr. Thorley's letter, dated London, June 9th, reads as follows:—"To John Thornton, Esq., 15 Laughan Place—Sir: I have to thank you for the perusal of the inclosed from T. L. Harrison, Esq., N. Y. State Agricultural Society, Albany, respecting the "Family Right" and "recipe" for making my Food. It is only necessary to state that it is a downright swindle and imposition upon the public of the States of America, and anything your friend can do in exposing the fraud will be esteemed a favor by yours obediently, Joseph Thorley, the inventor and sole proprietor of Thorley's Food for Cattle." Whatever may be the merits of Thorley's Cattle Food, and they are not under discussion, we think they can not according to this letter of Mr. Thorley be tested by buying one of these "Family Rights."

LARGE ESTATES IN EUROPE

are lying about loose, wanting the rightful heirs to come and claim them. A gentleman in Missouri sends us three circulars concerning a wonderful property in Holland, and asks what we think of them. We think they are very bad specimens of printing, and that so many heirs to so much property should put out better-looking documents. Some hundreds—rather thousands of such estates have been looked after by numerous relatives in this country. Can anybody tell us of an instance in which the hopes entertained have ever been realized? There is, of course, always some lawyer or other person who uses up the money subscribed by the hopeful heirs, and there is where the prophet (profit) comes in.

HOW TO GO WEST.

HERE is an invitation to those going West or returning, to join the Western Traveling Association, as it will cost less than half the usual fare. "Send at once \$1, and three-cent stamp by mail, for certificate of membership and card of instructions, giving P. O. address nearest R. R. station, and point of destination. Address Western Traveling Association, Lincoln, Nebraska." Now this may be all right, but it looks on the face of it like a gross fraud. We don't advise sending dollars to people, who don't publish their names—and not always then.

PARISIAN WATCHES.

A post-master in Mason Co., Ill., sends us a circular of a chap in Bond street, who acknowledges the receipt of the money for Parisian watches, but will not be able to fill the order for about 6 weeks. The P. M. asks what we know about the concern. We "know" that the same concern sends out circulars from Broadway extolling the "\$4 Geneva watch." We don't know, but guess that the "Parisian Watch" is about as good as the "Geneva Watch," and that one is about as likely to get returns from the one as the other.

"MEDICAL" MATTERS

are fearfully dull. We suppose the successful dealers in this kind of trash have gone to some flashy watering place to air their diamonds, and that the unsuccessful ones find it does not pay to push things in midsummer. At all events we scarcely ever found such a lack of novelty. The directions to an agent undertaking the sale of medicines or other things sent out by agents are amusing, even in this hot weather. One concern has nearly a page of rignarole for the agent to get off, and we can in fancy see the individual upon whom this eloquence is directed.... Here is a quack medicine fellow who furnishes agents with 50 or 100 pamphlets free of charge, and says: "The pamphlets can be distributed in many ways; through the post-office boxes, by means of school-children returning to their homes, by sending them about to the houses by a younger brother or sister, etc." Is it not a pity that innocent children must be inveigled into a coöperation with this wicked traffic.... Edwin Eastman was, according to the story, captured by the Comanches, and his wife, by the same token, was nabbed by the Apaches. Edwin was a captive seven years and was taught by Wakomketta (lovely name!) to make "injun" medicine. This was hard work for Eddie, and to say the least, was monotonous. So at length Ed. got away (for which we are almost sorry). E.'s wife got away too, and he brought with him the knowledge of "The Indian Blood Syrup." The story of E., Ed., Eddie, Edwin Eastman has been told in a pamphlet which is ornamented

with Eddie's portrait. It looks much as if he were a careless chower of tobacco, but we are informed that he was "branded." The knowledge of the wonderful Blood Syrup was confided to Clark Johnson, M.D., Jersey City, N. J., who puts out the little pamphlet briefly describing Eddie's woes and largely expatiating upon the medicine. Could the sufferings of E. E. and the virtues of the medicine be properly set forth in an eight-page pamphlet, half English and half German? Of course not. So we have a duodecimo book of 219 pages issued by "Clarke Johnson, M.D." in which the subject is done justice. The agony is piled up to that extent that one must shudder as he reads. No one man could have given such vivid pictures of Indian life. It must have been written by a combination like that which would be formed by engaging Ned Buntline, Capt. Mayne Reed, the author of Ouida, and the chap who writes plays for the Bowery, all on one work. When we read this book we could only make use of the old Quaker's oath—"Well I never!" Those who want to know about the life of the Comanche, Apache, and other pets of the government will find information in this book that can be found nowhere else. We have lived among the Indians a little, and wish to thank Edward E. for so largely adding to the knowledge of the world. But, alas! before we could find the poor captive and very-much-branded Eddie, we learned that like Sairey Gamp's Mrs. Harris—"There ain't no such pussen." Clark Johnson, M.D., Jersey City, modestly withholds his address, and we are informed that his letters are taken from the post-office by a messenger from Amity street, in New York. The relationship between our beloved Eastman, Old Mother Noble, Clark Johnson, Vin Iridin, and the rest, is too much for us to trace out this hot weather, though we have a pretty good clue to their genealogy.

"Bits of Talk."—"E." and others are informed that this interesting book on home matters will be sent from this office upon receipt of price, \$1.

Preserving Eggs.—Inquiries about the modes of preserving eggs come in crowds this month. In another part of this number of the *Agriculturist* we mention a method which may be successfully used in a small way, to which we refer inquirers. There is no better method of preserving large quantities than that given on page 248 in July *Agriculturist*. We take occasion to repeat the caution as to trying to keep eggs laid in the hot weather or that are not perfectly fresh when put down. Packing eggs in dry salt is of little use.

Capons and Caponizing.—"J. H., Laporte, Ind., gives capons an excellent character as nurses for young chickens. If one is put into a large box with twenty or twenty-four chickens, he will brood over them very carefully and attentively, and care for them in the best way possible. He asks where instruments for caponizing may be procured.—Of H. H. Stoddard, New Haven, Ct.

Windmills.—"C. F. M., Howard Co., Md., and others. It would be more satisfactory for all parties if those asking questions about windmills would read over our advertising columns and write for information to those who can supply it better than we can.

A Double Lilium Auratum.—Sometimes lilies become double and present a confused mass of shapeless petals. In one sent us by Mrs. J. H. Plimney, Roselle, N. J., the parts are all duplicated. There are six well formed petals just within the regular series, twelve stamens, and two pistils. We saw a similar flower a number of years ago, before this lily was in general cultivation, in the collection of Mr. Jas. Hogg.

Co-operation Amongst Farmers.—"C. M. O., Mitchell Co., Iowa. There is no reason why farmers should not combine to protect their own interests, but every reason why they should. The agricultural interest being the most extensive in the country, and being the basis on which national prosperity is built up, should by all means make itself felt. But caution should be exercised in choosing leaders in any movement looking towards co-operation or combination, and liberal and just views with regard to the claims of seemingly conflicting interests should be adopted, lest happily impossibilities be attempted, and failure in expectations should result.

Church Architecture. by Frederick Clarke Withers, N. Y.; A. J. Bicknell & Co. This is a very elegant work; the pages (18½ by 13) are of very heavy tinted paper, and the initials and border are exceedingly tasteful. The work gives plans and elevations of 21 churches and 2 schoolhouses, with many illustrations of details. Mr. Withers is one of our most successful church architects; and the designs in his work, which are

mostly by himself, have been carried out in building. All proposing to erect church edifices will find it to their advantage to consult this beautiful and elaborate work. Sold by Orange Judd & Co., price, \$25.

Landscape Architecture.—N. H. W. S. Cleveland, a well-known landscape architect of Chicago, has put forth through the house of Jansen, McClurg & Co., a work entitled "Landscape Architecture as applied to the wants of the West; with an essay on Forest Planting on the Great Plains." This does not profess to be a working manual, but it is full of useful suggestions, and treats of the general principles that underlie all successful treatment of lands whether on a large or a small scale. Though especially adapted to the West its teachings will be found useful everywhere. Sent from this office by mail for \$1.50.

Can not See It.—"W. F. W., Tampa, Fla., writes to ask "if it is cruel to hore the horns of cattle that have the hollow horn, how then can they be cured without boring them?"—Probably W. F. W. has not realized the fact that we do not believe there is any such disease, or that there is anything the matter with the horns. The trouble is in the stomach, and if some good food is put into that the horns will be all right.

Patent Gates.—"A. B., Findlay, Ohio. The remarks made in reference to the matter of claims for infringement of so-called patent rights in the *Agriculturist* of April last comprise all that can be said about it. Before any money is paid on any such claim, if the claim is honest the party making it will give evidence of that fact. Until he does it will be best to decline paying. Amongst the matters to be profitably discussed by farmers in their meetings just now is this one of patent rights. Without doubt many millions of dollars are unnecessarily taken out of the farmers' pockets yearly, and conveyed very quietly into those of owners of legitimate patents, to say nothing of the amounts fleeced from farmers by fraudulent patent rights. The whole business needs overhauling, and now is a good time for it.

Report of the Vermont Board of Agriculture.—The first report of the Vermont Board of Agriculture has been received. This is an especially interesting volume, containing several valuable papers by prominent Vermont agriculturists and scientific men, among which we notice an essay "On the butter dairy," by D. B. Wheelock, of Barre; another on "The establishment of the St. Albans butter market," in which are found many valuable hints to others interested in establishing local markets for the disposal of produce, with others of general interest. The volume altogether is a valuable addition to agricultural literature.

Reports Received.—We acknowledge with thanks the Ninth Annual report of the Ohio Dairy-men's Association; the proceedings of the Farmers' State Convention of Kansas, at Topeka; and the Resources and Advantages of Colorado, published by the Territorial Board of Immigration.

The Percheron Horse.—L. B. Drake. The true well-selected Percheron if judiciously crossed upon our native mares will make valuable farm and cart horses for certain localities. The style of the resulting animal will be much like that of the better class of Canadian horses. But to realize such a result the sire must be selected with great care, for he can not be picked up accidentally by any means. The demand for Percheron horses in France has been far ahead of the supply, and consequently there has been much careless breeding, and ungainly Normans have been substituted for the true race in whose veins Arab blood flows. Again there has been want of judgment in selecting mares for crossing, and much disappointment has resulted. The Percheron horse himself is not altogether at fault here, but the want of skill and knowledge of some breeders which has brought discredit on him. If our correspondent will seek out such stock as has been imported by Mr. Parker, of West Chester, Pa., and other judicious breeders, wherewith to improve his own, he may avoid disappointment.

Clover in Alabama.—"S. J. H., Tusculum, Ala., sends us a package of clover grown in Colbert Co., N. Alabama. This clover (common red clover) is three feet long, with a fine stem, and abundantly supplied with leaves and blossoms. Such a crop, if even on the ground, and as thick as from the slender stem it would seem to be, should cut three tons of hay per acre. The idea that clover will not grow in the South has been disproved long ago. Here is a proof that it thrives as well as at any place in the North or West. Our Colbert Co. friends need only to grow such clover, and to keep stock to eat it, to flourish and be happy.

Spring or Fall Colts.—"Inquirer" asks at what season colts should be born to make the best horses—spring or fall?—In the case of ordinary farmers, it is probably better to raise spring colts (the mares not being overworked while suckling), because the grass fodder will make more milk than the usual winter rations of a farm team. If grain is fed to the dam all winter (the colt having a chance to help himself to it), it is a good plan to have the foaling come in the fall, and to wean the colt on grass in the spring. It all depends on treatment. If the winter feed is abundant and good, we would prefer to have a colt dropped in the fall, rather than have him depend for his milk on a mare doing spring work.

Fence Against Dogs.—"B. K.," Greenup, Ky. Few dogs will get over a picket fence five feet high, yet we have known some to do it. With such a fence, the danger is that a dog after sheep will dig a way beneath it very quickly. In fact, we do not know of any plan by which sheep may be kept perfectly secure against dogs, unless it be by fencing with a high fence and closely watching through the day, and shutting the sheep up at night in a building.

Deep Cans for Milk.—"J. J.," Schoonmaker, Slaterville, writes that he now has a vat 12 feet long, 2 ft. 4 in. wide, and 21 inches deep, through which a stream of spring water is led by a half-inch pipe. His cans are 17 inches deep and 8 inches diameter. The milk stands 36 hours without souring in the hottest weather; the cream is then two inches thick, and solid, and makes firm yellow butter without the use of ice. The saving of labor to his family and the improvement of his butter are so great, that they are abundantly satisfied.

Chicken Catarrh.—"G. C.," Wellesley, Mass. The best treatment for young chicks with catarrh—a complaint which is distinguished by discharge of gummy matter from the eyes and mucus from the throat—is to keep them perfectly dry and warm, bathe the eyes with a weak solution of chloride of zinc, and wash the throat with a feather dipped in the same. There should be a little cayenne pepper or ginger given in the food, which should be scalded. Fine corn-meal or coarse wheat-middlings or bread-crumbs fed warm.

About the Mule.—"H. W. P.," Alstau Co., S. C., writes, in reply to "C. O. B.," that after forty years' experience as a planter with mules, he has found that the best animal in every way is the produce of the Mulesse Jack, which is of medium size, has a white muzzle, light color around the eye, whitish color under the belly, and is gray steel and sometimes nearly black as to its body. Its form is symmetrical, and with good mares it produces mules of fifteen hands, which, well cared for up to five years of age, will last twenty years, and keep in good order under hard work. They are active and enduring. The large heavy mule is often sluggish, and is not to be preferred to these lighter ones. He considers a mule to be the most valuable agricultural animal in the South and West; and one that, although he is generally roughly used, will properly appreciate kind and generous treatment.

Planting Timber.—"B. K.," Greenup, Ky. If a tract of woodland from which the large timber has been cut is left alone and cattle kept out of it, the growth will be renewed naturally faster than by replanting. Trees which have been grown in the open ground when transplanted into the woods, or trees from woods moved into open ground, receive a shock which they are a long time recovering from; while seedlings coming naturally grow rapidly and flourish in open woods if protected.

How His Fowls Paid.—"W. T.," Shelter Island, N. Y., sends an account of the eggs produced by forty hens from January 1st to April 30th. They were kept in a coop dug three feet below the level of the ground, and sixteen feet long and eight feet wide; the floor was bare earth, and the peak of the roof was seven feet above the floor. A window of six square feet was made in the roof. The fowls laid 2,037 eggs, which sold for \$17.50, and consumed \$17.65 worth of corn and clams, leaving \$29.85 for profit, besides 200 chickens running around and more on the way.

Mink.—"H. L. S.," Boalsburg, Pa., asks if there is any work on the breeding of mink. There is no such work known to us, and we believe there is none. There are but few persons engaged in this business, which is one that probably few would succeed in. There is, however, no secret in it. The chief difficulties are to get the mink, and when they are procured, to keep them

from getting away again. A closely-fenced yard, with a stream of running water passing through it, places for shelter or hiding and nests, and the proper food, which should be fresh animal offal and fish, are the chief things needed. Then a taste for the business, and unlimited patience and plenty of time to waste over it, may enable a man to gain a precarious living by it.

Wild Onion, or Garlic?—"E. W. S.," Baltimore Co., Md. There is no means of freeing the milk or butter from the unpleasant taste of garlic, or wild onion. The only thing that can be done is to prevent the milk of a cow that has eaten the weed from being mixed with the other milk for twenty-four hours afterwards. The breath and skin of the cow will smell so strongly that the discovery will be readily made. Garlic should be carefully extirpated from meadows and pastures.

Carrots for Cows.—"James," Mercer Co., Ohio. Carrots are better feed for milk-cows than mangels, but sometimes the cows refuse to eat them. In such cases we have overcome the difficulty by chopping up carrots and potatoes and sprinkling salt and a little bran upon them, when they are readily eaten; by gradually leaving out the potatoes the cow will take the carrots alone. Parsnips are even better feed than carrots, and will yield richer milk.

Ungrateful Hens.—"C. S.," Montgomery Co., N. Y., has one hundred hens which have a good, warm place, plenty of good water, corn, and lime, and still they decline to lay more than five to seven eggs a day—the whole one hundred! What will make them lay? A capital punishment for such hens would be to take off their heads and send them to market, and buy Light Brahmas or Leghorns or some other fowls that are more industrious, with the money.

"Wolf in the Tail."—"M. B.," Marshall Co., West Va., asks if cows ever have "wolf in the tail" with "hollow horn"? There are no such complaints as these. But when cattle become weak and poor by want of nourishing food, exposure to damp and cold, and by neglect, their extremities begin to show an altered appearance, which is a symptom and not a disease. The barbarous customs of boring the horns and pouring hot vinegar into them, and slitting the tail and filing the wound with salt, which are practiced by some farmers who, by neglect, permit their cattle to get out of condition, should be severely censured, and a better way pointed out. The cattle should be kept warm and clean, be well fed and cared for, and their general health will then very seldom be affected so as to call for medicine or any other treatment.

Oats or Corn for Horses.—"J. D. P.," Tipton Co., Tenn. Oats are better than corn as continual feed for horses; but oats and corn ground together will answer very well. A proper quantity when fed with cut hay or oat straw would be three quarts at a feed.

Pigs with a Cough.—"M. B.," Sherrard, West Va., asks what to do with the pigs which have a cough. A cough is more often a symptom of indigestion than of cold in pigs. They should have some charcoal given to them; some wheat or rye-bran, scalded and allowed to cool, would be good for them. Soap-suds is not to be recommended as a medicine for pigs; a little charcoal, with a handful of wood-ashes and a teaspoonful of salt, given to them, would be far better.

Limed Eggs.—"S. K.," Bedford Co., Pa., asks how the eggs, known in the market as limed eggs, are prepared and preserved. The dealers who handle large quantities of eggs have brick tanks built in a cool cellar. The eggs are packed in these tanks and kept covered with clear lime-water. Any vessel, such as a tub or barrel, will answer the purpose in a small way as well as the tanks.

A String of Bony Questions.—"E. W. P.," Derby, Conn., asks why two barrels of bone-dust, two barrels of wood-ashes, and six pails of water, mixed and left on the barn-floor for two weeks, did not result in the bone dissolving? (2d.) Can sulphuric acid be purchased pure at a druggist's, and at what price? (3d.) In mixing ashes and bone-dust, is there a loss by freed ammonia? (4th.) How fine is finely-ground bone? (5th.) Can ashes be most profitably used on an old meadow soon to be turned under, or on a new meadow? (6th.) What is the comparative value of oats in the straw with timothy hay?—*Replies:* (1st.) Because the dissolving or reducing bones by such a method can not be effected in so short a time as two weeks. (2d.) A druggist ought to supply "commercial sulphuric acid" at three to

twelve cents a pound, or thereabouts. (Chemically pure acid is worth forty cents.) (3d.) Yes, if moisture is present. (4th.) The finest is as fine as flour. (5th.) It will make very little difference in the ultimate profit, but generally the quickest returns are from the application on new meadows. (6th.) It depends altogether on the time of cutting. Oats cut before maturity (or in the milk) are worth as much as the best timothy hay, and twice as good as timothy cut when ripe.

Eggs from Sick Fowls.—"A. Q. H.," West Windsor, Ohio. Cholera being undoubtedly a blood disease of course affects to some extent the character of the flesh and eggs of fowls subject to it. But after a cure the blood is restored to a healthful condition, and the fowl no longer experiences any ill effects from the disease. Simple diarrhoea does not affect the character of the fowl as food, excepting so far as the emaciation which occurs. Eggs for hatching should always be selected from healthy and vigorous fowls.

Early Lambs for the Butcher.—"A. Chamberland Co., N. J., farmer writes: "I purpose to buy some Merino grade ewes and raise lambs for the butcher. I want to keep the ewes fat enough to go off soon after the lambs are gone. I see you sometimes recommend using a Cotswold ram for such purposes. Here farmers think they must use a South-Down ram or the lambs will not fatten. Cotswold grade lambs they say will grow but not get fat. Is this true?"—It depends a good deal on the breeding of the Cotswold. He should be thorough-bred, not too large, and so bred that he will mature early. A good many breeders of Cotswolds have aimed to get size rather than good form and early maturity. In our own experience we have had no difficulty in fattening grade Cotswold lambs, but much depends on getting the right kind of ram and on feeding the lambs. A well-bred Cotswold should mature as early as a South-Down. But you must not select the largest Cotswolds. Great size and early maturity are rarely if ever found in the same animal.

Plaster and Bone-dust for Wheat.—"S. D. S.," Md., asks us to give him "the proper proportions of bone-dust and plaster, as a fertilizer for wheat."—There is nothing to be gained in mixing bones and plaster together. They will do just as much good sown separately. Sow from one to two bushels of plaster per acre, and five to ten bushels of bone-dust.

The Right Side of an Animal.—"H. W. T." The right-hand side of an animal is that side which corresponds to the right-hand side of a man. Thus, when a man faces an animal or looks directly at its face its right side is at his left. The protuberance on the side of a loaded cow is on its left side, and when a man is facing the animal of course the protuberance is on his right.

Remedy for Hoven.—"Observer," La Salle Co., Ill., writes that he has always succeeded in curing hoven or bloat in cattle by placing a round stick crosswise in the animal's mouth, and holding it there by a rope tied to each end and passing around the horns. The animal is then driven briskly around the yard, and in its effort to get rid of the stick discharges the gas from the stomach.

Artificial Manure.—"A. J. B.," Prince Edwards Co., Va., sends a description of an artificial manure, composed of 20 bushels of earth, 3 bushels wood-ashes, 3 bushels fine bone-dust, 3 bushels plaster, and 113 pounds of nitrate of soda, sulphate of soda, muriate of soda, sulphate of magnesia, and sulphate and muriate of ammonia. The advertiser offers to sell all the ingredients, except earth and ashes, at \$25 per ton. He claims it to be equal to natural guano. Our opinion of the matter is asked. Each of these ingredients, except the plaster and the muriate of soda (common salt), is worth more than \$25 per ton. Some of them are worth 5 cents and some 13 cents a pound, wholesale. As they are the most valuable fertilizers, of course there can be but a small quantity of them in the mixture, and the manure would not be an approach to guano in its value as a fertilizer.

Double Furrow Plows.—"M. B.," Clinton, La. The double furrow plow is extensively used in England, and it is found there that three horses and one man with one of these plows can do as much work as four horses and two men with two single plows, the character of the soil being the same in each case. On light soils, these plows will undoubtedly be found useful and economical. Gang plows, with three or more shares, are largely used in California.

Corn for Soiling.—"A. C.," Knoxville, Tenn., writes that in the South there is no soiling crop that produces more or richer milk when fed to cows than corn, unless it be cow-peas. The Southern corn, he thinks, being much sweeter than the Northern, induces the cows to consume more of it than they would of other feed. He further writes that "the *Agriculturist*, by laying down broad truths and common-sense views which are as much applicable to the South and West as to the North and East, is doing a great deal to improve its readers."

Chickens in the Barn.—"N. F. F.," Sandwich (no State). Chickens will not thrive if shut up on a barn floor. They are far better to be cooped on the ground out of doors in a dry place. Probably a large proportion of sudden deaths amongst young chicks are due to over-feeding and cramming. They require feeding very often and very sparingly. A quarter of a pint of corn is ample supply for a hen for one day without any other food, and one teaspoonful of corn-mush or coarse meal per day is sufficient for a very young chick.

Size of a Ton of Hay.—As usual at this season we have many inquiries as to estimating hay in bulk. "Ordinary" hay is such a vague term that no rule can be given to estimate it as such. But 600 cubic feet of timothy, or hay of two-thirds timothy and one-third clover, well packed in a stack or mow, will weigh a ton. 800 cubic feet of clover alone, or common meadow grass made up of timothy red top, white bent or fescue, will make a ton if well-packed.

Going West.—After a lengthened visit to that part of Central and Western Kansas included in the valley of the Arkansas River, we can not hesitate to recommend that portion of the country as especially favorable for those who desire to move where cheap lands, some free homesteads, fertile soil, abundant water, perfect healthfulness, and extensive range for stock may be found; all these with short winters and a season of ten months during which the plow may be kept constantly at work may there be enjoyed. We understand that the Atchison, Topeka and Santa Fe Railroad has over two millions of acres for sale in that valley, but that the government homesteads are about all taken up; consequently the country is already comparatively well settled.

The Yellowstone Region.—Since the wonders and capabilities of this heretofore unknown region have been made known through the government explorations it has been a country of great interest, an interest which the reservation of a large tract for a national park will only increase. The Northern Pacific Railroad traverses the valley of the Yellowstone and will do much towards developing the country. Aside from this means of communication with the region we now learn that the river is navigable for 550 miles, and that it presents less obstacles to navigation than the Missouri. With a navigable river on the one hand and a railroad on the other we may expect the country will prove attractive to those who are seeking a home in the "far West."

Grass for a Name.—"Learner." The specimen is Couch-grass (*Trisetum repens*), called also Quack, Quitch, Squitch, Twitch, and several other names. The grass is relished by cattle and makes good hay. It is, however, a great pest in cultivated land, and on account of the vitality of its long and strong roots difficult to exterminate.

The Grape Crop in Missouri.—Messrs. Isidor Bush & Co., the largest grape and wine firm in Missouri, under date of July 1st, say: At this season of the year the prospects of the growing crop are yet too uncertain to be relied upon. We are glad to state, however, that the condition of our vineyards is by far better than generally expected. Concord, which is more largely planted than any other variety of grapes, gives promise of a fair crop. A few other varieties come out with fine clusters. *Cynthiana*, our best red wine grape, adds the glory of having remained unharmed during the intense frosts of last winter to its other superior qualities; and while it remains true that we shall have no crop whatever of Catawba and other fine varieties, they make at least a very fine growth of young canes, the most essential basis for a crop in 1874. Reports from the vineyards of Germany and France indicate that their prospects for a large grape crop this year have again been nipped in the bud by heavy frosts as late as April 25th—consequently the news from the European wine districts continue to predict a further advance of the already very high prices.

His Chimney Decays.—Some months ago H. W. N., Winnebago Co., Wis., wrote us that his chimney fell to pieces, the mortar losing its cohesion

and the bricks crumbling. We wrote for further particulars and learn that the chimney is 24 feet high from the point where the stove enters it, and from the stove by way of the pipe to the chimney is 30 feet. The kind of stove is mentioned but we do not know the pattern. We judge that the trouble is due to incomplete combustion of the wood. As fire is kept all winter the combustion at night must be very slow, and a good part of the wood is subjected to what is called destructive distillation. If wood be put into a retort or air-tight cylinder and heat applied to the outside a portion of the wood will be driven off in the form of gas and vapor, and a large share of it be left behind as charcoal. If the vapor be condensed it will be found to be strongly acid. Indeed, this is just the process for preparing impure acetic acid or wood vinegar. A very similar state of affairs exists in our friend's stove at night when the combustion is slow. A portion of the wood is distilled rather than burned, and owing to the great length of pipe the acid products get cool and condense in the chimney and act upon the lime and bricks. We do not see how he can help the matter unless he keeps a stronger fire at night, or shortens his pipe so that the acid vapors may pass into the air before they are cooled enough to condense.

Gapes and Lice in Chickens.—"E. Van A.," Monroe Co., Pa., and others. When the cause of a complaint is known the remedy is easily found. The cause of gapes is the presence of worms in the chickens' throat. The worms are supposed by some to be the larvae of lice which infest the fowls. The chicks hatched are free from lice; they must therefore come from the hens. Lice abound in filth, and are absent from perfectly clean houses and yards. Therefore clean out the roosting places thoroughly; no half measures will do. Let there be no wooden floor, but fresh earth constantly dug over or renewed. Tear out of the building every cleat or board that leaves a joint wherein vermin can hide. Wash the house with hot lime-wash and fill every crack. Pass the roosting-poles through a fire of straw or scald them, and soak them every week with lard and kerosene oil or crude petroleum. Anoint the lousy hens with lard and carbolic acid or kerosene oil beneath the wings. In the same way make the hens' nests clean and free from vermin. Such a vigorous campaign against the enemy routed them completely from our fowls; and with a good range and fresh stations each day for the coops and persistence in these preventive measures we never had one case of gapes amongst several hundred chicks or any lice on our hens afterwards. Tumble down sheds and roosts over hog pens or filth will certainly harbor lice, but in decent houses specially appropriated to their fowls will rid themselves of any vermin that may annoy them; and fowls decently kept pay well for the decent accommodation.

New York State Dairymen's Association.—The report of the first annual convention of the New York State Dairymen's Association has been received. Its contents will be found of great interest to all who are concerned in dairying, not only in New York, but in other States. We feel obliged, however, in the interests of dairymen themselves, to notice with objection a remark made by the author of a paper contained therein on "Dairying in Oswego County," otherwise unexceptionable. He takes occasion to say that "the general introduction of improved stock is prevented by the mammoth prices at which they are held by those who deal in them; when a thorough-bred heifer is held at 500 guineas, small-fry farmers must take back seats, and let wealth and arrogance without especial merit head the column." How totally uncalculated and incorrect this remark is must have been very apparent to the majority of those who heard it read, as it is to every one who knows anything of the business of raising thorough-bred stock, and of the character of those wealthy—but far from arrogant on that account—gentlemen engaged in this pursuit. The country generally owes a great debt to such men. It is they who have built up races of improved stock which have added millions to the income of small-fry farmers who have been intelligent enough to appreciate the value of their costly and unprofitable efforts to themselves, at least in a pecuniary sense. It is not they who make the money. Farmers without the control of large capital could not afford the time, leisure, and expense needed to seek out choice specimens, and to spend a life-time in eradicating faults and building up and adding to points of excellence. They are really and in fact public benefactors while seeking pleasure, in pursuing each his particular hobby with the greatest perseverance and intelligence. As to the profit to a "small-fry farmer" who has \$500 or \$1,000 to invest in a choice animal in expending this sum in improving his stock, we need not enlarge. The facts speak for themselves, and they are plain and numerous. The dairy interest can not afford to permit a slur to be cast upon the efforts or character of the improvers of our stock. Those gentlemen do not need any defence; it is, on the contrary, in the interests

of the "small-fry farmers," the producers of our beef, butter, and cheese, that for them we point out how underserved and uncalled for are these remarks. We know they hold no such ideas, nor sympathize with any such feeling.

The Farmers' Declaration of Independence.

The Fourth of July was largely celebrated in the Western States by Farmers' Associations, County conventions, granges, and other bodies that join in the present anti-monopoly movement. The celebration by farmers was especially general in the State of Illinois, and at most of the gatherings there was read the New Declaration of Independence issued by the State Farmers' Association. This document, which is too long for the present crowded state of our columns, is largely a paraphrase of the Declaration. In the place of the series of indictments against England so forcibly put in the older instrument this contains serious charges against railroad corporations and corrupt legislators, and concludes as follows:

"We, therefore, the producers of this state in our several counties assembled, on this the anniversary of that day that gave birth to a nation of freemen and to a government of which, despite the corruption of its officers, we are still so justly proud, appealing to the Supreme Judge of the world for the rectitude of our intentions, do solemnly declare that we will use all lawful and peaceable means to free ourselves from the tyranny of monopoly, and that we will never cease our efforts for reform until every department of our government gives token that the reign of licentious extravagance is over, and something of the purity, honesty, and frugality, with which our fathers inaugurated it has taken its place.

"That to this end we hereby declare ourselves absolutely free and independent of all past political connections, and that we will give our suffrage only to such men for office, from the lowest officer in the state to the president of the United States, as we have good reason to believe will use their best endeavors to the promotion of these ends; and for the support of this declaration, with a firm reliance on Divine Providence, we mutually pledge to each other our lives, our fortunes, and our sacred honor."

Bee Notes.—Advice to Beginners.

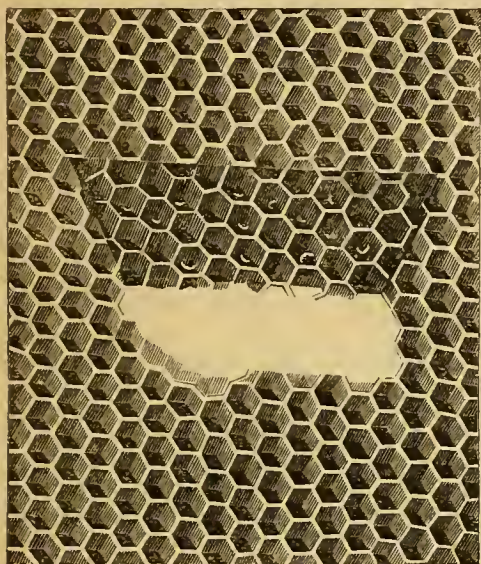
BY M. QUINBY.

It is said, and the assertion is pretty well sustained, that a queen bee, when everything is favorable, will deposit on an average 8,000 eggs every 24 hours. A good swarm of bees consists of some 20,000. If the eggs that a queen will lay were all cared for until hatched into bees we can easily see that every ten days will at this rate furnish a large swarm. We can also see that every day a properly situated colony is without a fertile queen there must be a great lack in the increase. As many proportionally die in such a stock as in one that is maturing bees. Enough bees to make several swarms die off annually from any thrifty stock. The age of a worker bee is but a few weeks.

A piece of comb an inch square will contain about fifty cells—worker size. A hive of ordinary size will contain from 60,000 to 80,000 cells. We can all readily see the advantage of having an abundance of comb in suitable condition to receive the eggs that a queen will deposit, and, above all, that there should constantly be a queen depositing eggs. In the natural process of swarming colonies are without a laying queen from fourteen to eighteen days. In ordinary artificial swarming about twenty days. A colony that designs throwing off a swarm—to make the time short as possible—will begin preparations several days beforehand to provide a successor to the queen that is to leave, and to make a sure thing of it usually several young queens are reared. When the first cell containing a queen is sealed over, the old queen and most of the bees leave as a swarm. In making an artificial swarm the old queen is taken with the bees, and the old stock is left destitute the same as in the other case. They do not usually have any queen cells started, and have to begin from the eggs or any young larvae, and it will take them some days longer to mature a queen. When bees, if only a hundred or two, are deprived of their queen and have eggs or young larvae, they will at once commence preparations for one, and it will take them from ten to sixteen days to mature it. In eight days after leaving the cell, when all is favorable, she will begin to lay. But there has been a loss of two or three weeks in egg laying. Every bee-keeper who is disposed to turn the industry of his bees to the best account should begin to rear queens early that they may be ready by the time he has swarms, either natural or artificial, thereby gaining many bees.

I have found it most economical to rear queens in small boxes. Those made on the Langstroth or common movable comb principle will answer as well as any. I use three combs about five inches square, suspended in frames that will go in a box easily. No top or bottom nailed

fast. Near the centre of the middle comb cut out a piece near three inches long on the upper side, two inches on the bottom, and a little more than an inch in depth. Now take a comb from a hive that is breeding containing eggs or larvæ just hatched from the egg—new comb is best—cut out a piece of the same shape half the depth of the space cut out of the comb, and just long enough to fit in the upper side closely, and it will appear as in the figure. The bees will wax it fast in a few hours. Near a pint of bees is wanted to rear the queens. If they can not be had from any place a mile or two away they may be taken from a hive at home by taking young bees. Young bees are best. Obtain them by taking two or three



BROOD COMB INSERTED FOR REARING QUEEN.

combs without the queen in the middle of the day from a hive from which abundant brood is hatching—you have movable combs of coarse—and put them into an empty hive or box a few feet from the old stand. In an hour or two the older bees will return to the hive. The bees that remain may be brushed into an empty box and shut up. Now set the box prepared for rearing queens over it, and let the bees creep through a hole left for the purpose up into it. Finding the brood they at once commence enlarging one or more of the worker cells into such as are required for raising a queen. If very warm give a little water in a sponge. They may be allowed to fly out in 48 hours.

If there is no honey in any of the combs, they should be fed a little while shut up, as well as afterward, unless they can obtain it from the flowers. On the tenth day, if they finish more than one cell, the supernumeraries may be cut out carefully, if situated so that they can be without mutilation, and given to another little box of bees prepared in the same way, except that the cell is put in instead of brood. If more than one cell is left, the first queen that hatches makes it her business within a few hours to destroy all rivals; she bites a hole in the side of the cell, and thrusts her sting into the most vulnerable part of her calmly reposing sister, which in a few minutes proves fatal. The queen when rid of all rivals will fly out to meet the drone in about six days; if successful will begin to lay in about two days more. The eggs may be seen in the bottom of the cell. She is now ready to introduce into the full colony that is queenless; but can remain in the little box several days if none are ready to receive her. The old hive having swarmed, the new colony should be put on the stand of the old one, that being moved a rod or more to a new stand. All the old bees return to their old place in a day or two. Open the old hive and cut out all the queen cells. Take the mature laying queen from the little box, and if you wish to be absolutely certain that she will never lead off a swarm to the woods, cut off one wing to prevent her flying ever afterwards. With some honey in a spoon smear her completely. Turn her over a few times with a feather, or something that will not harm her, and then drop her among the bees at the top of the hive, who will clean her off the first thing and accept her as mother. Prof. Agassiz is reported to have said in a lecture given at Cambridge recently, that the young queen matures and endeavors to force her way out of the cell, and is kept back by the bees, before the first swarm with the old queen leaves. Those who have full confidence in his statement will doubt the propriety of introducing a queen to the old hive as I have directed. But I will assert, without fear of contradiction from any one fully acquainted with the subject, that not one first swarm in fifty, or even five hundred, will issue under

such circumstances. Erroneous teaching leads to erroneous practice.

Artificial swarms can be made, if their condition is right, later in the season. To make one, do it, if you can, in the middle of the day. Lift out combs carefully, and find the one that the queen is on. Put that, with the bees on it, into the new hive with frames, and set that on the old stand, and remove the old one away as before. Two days after introduce the fertile queen, as in the other case, without taking the trouble to cut out cells. Two days is all the time that is lost in breeding. There are bees enough always left in a good stock to nurse the brood. In a few days, or weeks at most, they are as strong as the old one was. By making swarms artificially, and introducing fertile queens in this way, five or six strong colonies may be secured in one season, providing the yield of honey is good. All should be kept strong. If the old queen could have empty combs instead of empty frames it would facilitate operations greatly. If the flowers do not yield honey plentifully, they should be judiciously fed, especially toward the last of the season. More about feeding next month. With the movable frames it is, in a measure, optional with the bee-keeper whether he has increase of bees mostly or surplus honey. We can not have both largely any more than we can have plenty of eggs when biddy is hatching a brood of chickens. If the energies of the bees are devoted to the increase, and providing their stores for winter, they can not get much surplus. We can choose that which we want most, or divide the product and have a moderate increase and some surplus; that is if the season is favorable like the present up to July.

FOUL BROOD.—For the last few years we have been exempt from foul brood in this vicinity, yet I would recommend an examination of every old stock, and if it is found in any—it is fully described in "Bee-keeping Explained," page 210—take out the bees and put them into an empty hive like a new swarm at once, and suffer none of the contents of the old hive to be taken with them. If the honey they have in the old hive will be needed for winter stores, it should be thoroughly scalded and skimmed, to destroy whatever poison it may contain, before feeding it.

Surplus boxes taken off this month and next on account of greater scarcity will be likely to need more care to prevent bees taking out the honey and carrying it back to the hive. If the quantity is not much, the boxes may be set into any empty barrel, right side up if possible, in a manner that the bees may get out of them. If turned on one side, have all the sheets of comb vertical. Throw a thin sheet or cloth over the barrel, to prevent outside bees from getting in. Those on the inside will creep up to the underside to get out. Take off the sheet and shake off the bees a few times, returning it quickly to prevent others getting in. When honey in the flowers fails greatly, as it does in many sections this month, the bees will begin to take it out of the boxes on the hives. That in the unsealed cells will be carried down. Close watch is needed to save it. In sections where buckwheat honey is obtained, it is generally stored this month, and boxes part full of clover will be finished out with the darker honey, and appear like all of that quality. If not wanted mixed take off the clover boxes early. Clover honey sells much the best.

A SWARM IN A HOLLOW TREE.—E. W. Taylor writes: "On the 28th of May a swarm of my neighbor's bees came over near my house and went into the hollow of a large chestnut-tree. It will be next to impossible to get them by cutting the tree. They are in one of the largest branches. The tree is easy of ascent, and branches near the hollow. A bee-hive could be placed near the hole with but little trouble, if they could be induced to come into it. If there was any way to make them swarm the hole could be stopped, and they might be hived easily. It is a very nice, large swarm. They are not wild. If you will tell me how to get them, I shall consider it a favor."

REPLY.—I get such inquiries frequently. An answer to this one will apply to many others. The instincts of bees should be understood. Bees after they get comb made and occupied with brood never voluntarily leave a tenement that will possibly answer, even for one much more commodious. They never desert it as long as healthy. If this were understood it would save much idle speculation, and sometimes money. A year ago we sold a lady a stock of bees in the improved hives. They were lost in the winter. She added another in the spring. To save the expense of a hive she was advised to take only combs, frames, and bees, seat in a rough box, and transfer to her empty hive. It could have been done in five minutes. But the operator, probably, had never read the directions for transferring, or had any experience in avoiding stings. The bees were received in good order. Her manager not understanding the above-mentioned principle or instinct, and supposing that the brood sealed up in the combs was of more value than all else sent, thought if he

opened the box that contained the bees, that they would go right into the offered hive of their own accord and abandon all. They did not go. They were then damped into the hive in bulk—hurriedly, I suppose for fear of stings—all the combs were broken and spoiled but two combs, and they were bottom up. The mature bees were nearly all destroyed. I attended and set matters to rights. They had the queen yet, and may recover by fall, yet there will be a loss of at least \$25 for this season, if the yield of honey should continue as it has commenced. This is in consequence of not understanding principles.

The man with the swarm in the chestnut-tree can not expect the bees to come out voluntarily any more than they went to the hive from the rough box. They have brood in a week after they are located. The bees can be got out of the tree only by force. An important question to consider is, Will it pay? Are they worth anything as they are in the tree? How much would it cost to get them out? It might, perhaps, take a man all day. How much would they be worth in a good hive? If worth nothing in the tree, and \$15 or \$20 in the hive, will the difference in value pay for the trouble? The value in any case will depend greatly on the yield of honey after they are out. In estimating the expense, it would be well to consider the necessity of obtaining the assistance of a skilled mechanic, and one who has had some experience with bees, that he may work without constant fear of stings. They must be transferred, brood and combs. The tree may be left standing if it is best. A scaffold can be made in the place where a hive can be placed with little trouble, on which a man may work to make the examination. The first thing to do is to ascertain which side of the cavity the shell is thinnest, and its extent up and down the tree. With a brace and bit, or auger, bore a few inch holes through the shell to ascertain the extent of the cavity. Make two rows of holes close together at the top and bottom of the cavity, across the body of the tree. With mallet and chisel split out the piece between the holes, or if the grain of the wood will not allow of its splitting, bore another row of holes up and down, and the slab can be readily taken out, exposing the whole surface of the combs. The bees by this time will not be disposed to sting, and the work may progress without fear. The combs will probably be new and tender. Those which are filled with honey only may be cut from the others and saved for the table. Those containing brood must be put into frames, and held just as described in transferring in the May number of the *Agriculturist*. If the weather is warm—it ought to be—the combs will be very soft, and care will be needed to keep them straight. They may be laid on a board and brought to the ground and fitted in the frames. When all is arranged, set the hive as near as possible to the entrance in the tree and put in the frames. Probably the bees will have crept off the combs upward as soon as the work commenced, and will be in a cluster not far off, either out or inside. They can be dipped into the hive as easily as so much sawdust. When the queen is once in, the bees will follow without fail in the course of a few hours. Shut the hive and leave it until cold weather.

The Patrons of Husbandry—The Granges.

Several have written to ask if we should advise them to join the Patrons of Husbandry, and others to ask what we think of the organization. There are certain things upon which we do not care to give advice. If we are asked by a correspondent if he should join a particular church, if it is best for him to belong to this or that political party, or if he had better unite himself with the Masons or Odd-fellows, we reply that these are matters in which each one should judge for himself. So, in regard to the Patrons of Husbandry, we have not felt it within our province to advise persons to join or withhold themselves from the association. Much depends upon the character of such an organization at any given point, and many other things which those at a distance can not judge of. In a pretty wide experience, we have in one place known a certain very popular and generally worthy organization to include all the meanest men in the town, and in another place the same body had all the best men among its members. So it may be with the Patrons of Husbandry in certain localities; and we advise each one to judge for himself. As to what we

think of the Patrons of Husbandry, that is another question. When it was started, several years ago, the chief claim that its advocates presented was that it was a co-operative society, and it would enable its members to procure farm implements and supplies from first hands, without paying profits to dealers. Being unable to see how such an "order" could change the ordinary course of trade we had little to say about it. Recently, however, the whole matter has taken on a new aspect. The farmers in several of the Western States, on account of high freights, have been suffering from low prices for their produce, and a general desire for some unity of action with reference to railroads developed itself. Here was the Patrons of Husbandry at hand, with its machinery in working order, and capable of indefinite extension. The necessity for some kind of organization through which the farmers could make themselves felt led to a wonderful increase of the order, and granges multiplied with astonishing rapidity. At the last published account, there were, on June 25th, according to the *Prairie Farmer*, which claims to have its information from official sources, 4,227 granges in the United States, distributed as follows:

Iowa.....	1,671	Alabama.....	13
Illinois.....	517	North Carolina.....	11
Missouri.....	347	Oregon.....	7
Minnesota.....	274	Dakota.....	7
Nebraska.....	248	Louisiana.....	6
Kansas.....	243	New York.....	5
Indiana.....	201	Virginia.....	3
Wisconsin.....	159	New Jersey.....	3
Mississippi.....	145	Pennsylvania.....	2
South Carolina.....	123	Kentucky.....	1
Ohio.....	64	Massachusetts.....	1
Tennessee.....	37	Texas.....	1
Michigan.....	34	Colorado.....	1
Georgia.....	28	Canada.....	8
Vermont.....	23		
Arkansas.....	23	Total.....	4,227
California.....	22		

Now here is an organization of immense extent and great power for good or evil. It is not to be ignored, nor is it to be put down by any amount of ridicule or denunciation. Whatever we may think of the machinery of the order, and however we may feel that farmers of all people have no need of secrecy in any of their proceedings, here is an immense organization that must be accepted as one of the facts of the time. That such a body under wise leaders and cautious counsels can effect much good, there is little doubt. But will they have these? This is one of the problems of the day. If the organization is made use of by designing politicians to serve their own selfish ends, better that it had never existed. If, however, it should prove as we hope it will, the means of awakening farmers to the fact that they have a voice in public affairs; if it shall influence them to send to the State and National legislatures only honest and incorruptible men; if it shall cause farmers to inquire into the qualifications of the men they vote for, it will prove indeed a blessing. As to the present conflict between the granges and the railroads about which we hear so much, we have not space to discuss it. We believe the interests of the farmers and the railroads to be identical, as neither can succeed without the other; and have no doubt that when the present excitement has passed away a mutual concession and respect of the rights of each other will lead to a fair adjustment of the points in dispute. A great wrong, assuming that there be one in this case, never can exist long in this country. The people are right at heart, and when they speak all "monopoly" and "oppression" must cease. There was never a more hopeless case than that of the property holders and tax-payers of the city of New York

two years ago. When the people were convinced of the necessity of doing it, they forgot all else and swept aside "Rings" and all plundering combinations. If the farmers of the Western States are wrongly treated they have the power in their own hands to right themselves. They have need, however, to beware of hasty and ill-considered legislation, for the case is one that needs statesmanship rather than oratory. Those who talk the loudest are rarely the wisest leaders.

Other letters come to us asking why we do not become an organ of the Patrons of Husbandry, and promising much if we will do so. We are the "organ" of only one thing, and that is "American Agriculture." Whatever is to the benefit of this has our hearty approval. If the organization of granges will tend to the benefit of the farmer we say go on and organize, and so far as seems proper for us we shall report your progress. Just here we wish to say a word to those in granges and those who contemplate joining them. Membership of any organization does not alter human nature. There will be men who will use this membership to advance their own selfish ends. We know some men who are active in the order whom we would not trust with a dollar, and we know others whom we are sure gold could not buy. The future of the granges depends upon which of these classes of men are made prominent. So far as the granges will bring farmers to know one another better; so far as they make farmers feel that they must take a part in "politics;" so far as they help to give them fair returns for their crops; so far as they tend to make farmers everywhere better American citizens, we say, God speed.

Wool and the New York Exposition and Salesroom.

BY A FARMER.

The movement of Mr. Goodale to establish an "exposition and salesroom" in New York is worthy of encouragement and commendation. It is one more attempt to bring the producer and consumer face to face. Wool is to be exhibited by sample, and to be sold by sample. He who exhibits the best sample in his class for any year is to have a premium (awarded by manufacturers acting as judges). This is all very well, and can not fail to do good.

It seems to me that there will be two sources of difficulty. (1.) Knowledge, skill, and judgment are needed to sample wool properly, and these can be gained only by experience which many farmers lack; and (2) too many farmers will lack the honesty to do it fairly. A sample of wool should be a sample of the whole clip which is to be sold by it—not a sample of the best part of an average fleece, nor of an average of the best fleeces. It should represent not only a fair specimen of the wool, but also a fair proportion of the shorts, dirt, and burrs of the whole lot of fleeces.

Of course, not many would be stupid enough to show a sample *very much* better than the whole clip, but it is important in matters of this kind that the sample should not be *at all* better than the stock, and it is just here that many farmers are apt to fail—not in glaring dishonesty, but in a small attempt, in a small way, to get a little the better of the buyer. This tendency always redounds to the benefit of the buyer; for as soon as it is understood to be pos-

sible it is assumed to be probable, and allowances are made which shall surely be enough to cover the chances, and more too. The bad men suffer more than they ought, and the good men suffer still more. The best service Mr. Goodale can render in connection with his enterprise will be in devising some plan by which buyers will be assured that each sample he offers them shows as nearly as possible the *exact* character of the lots it represents.

Western Farming.

"A Western Farmer" writes: "The *Agriculturist* is of great use to me. I get a great many valuable ideas from its pages; but your remarks about manure and manuring, and some other practices common on Eastern farms, are not suitable for us in this Western country, where our soil is of inexhaustible fertility without it. Our trouble is how to get rid of the stuff."

While we are glad to know that our efforts to diffuse information are successful, and that the broad aims of the *American Agriculturist* reach the objects to which they are directed, we must point out to our friend wherein he labors under a very serious mistake. The *American Agriculturist* is not a local paper, but, as its name and title signifies, endeavors to adapt itself to all classes and all localities, and become really American in its teachings. Amongst its editors are at least two who have spent some years in the West, one of whom has for 17 years been more or less closely connected with agricultural pursuits there, along with other occupations which have a close connection with agriculture. Western farming, therefore, with all its peculiarities and prejudices, is well understood by us; and its history, from the time when the prairies of Illinois were as yet unfurrowed by the plow, and in the condition now presented by those of Kansas and Nebraska, is perfectly familiar. It is many years since we first heard of the inexhaustible fertility of Western lands; and on the very same fields where near a score of years ago this phrase was in continual use, we have within a year past seen manure as carefully preserved and as laboriously spread as upon any Eastern farm. Gradually this *inexhaustible* fertility decreases, and the soil must be helped or it can not maintain itself. Western farmers, too, have already arrived at that point when they are figuring whether 30 or 40 bushels of corn or 12 bushels of wheat per acre without manure are not less profitable with their present careless cultivation than double those crops with more careful methods; whether it is not better, easier, and more profitable to raise the same quantity of produce on 50 acres well tilled than on 100 acres not so well tilled; and many are discovering that the larger crop on the smaller field pays better than the smaller crop on the larger field. Many farmers, too, have discovered that even on the richest corn lands of the West it is an unprofitable business to raise corn wholly for shipment to Eastern markets, and that the more they can concentrate their product, and turn their corn into pork, beef, cheese, and wool, the better it is for themselves. The greater the concentration the less freight there is to be paid, and the more money there is in a small bulk. This is precisely what Eastern farmers have learned and are now practicing, and Western farmers are seriously interested to learn and do likewise very soon, if not at once. To point this out is a part of the business of the *American Agriculturist*, and if our friend thinks we are somewhat ahead

of the times, so far as he is concerned, he will certainly believe that that is better than being the least bit behind the times in anything. Let our Western friends look forward while they enjoy their present advantages lest they, like some who were once in the "far West," but who are now brought by the spread of Western empire into the East, leave an impoverished heritage to their children. By wise foresight now, they may preserve the fertility of their fields. There is nothing inexhaustible; and the proverb that "riches endure not forever, neither doth wealth to every generation," is as applicable to the richest fields of the West as to any other matter or thing.

Packing and Marketing Produce.

BY J. R. HELFRICH.

[The recent articles of Mr. Helfrich have been for the benefit of the market-gardener and fruit-grower; the one we present this month covers the subject of poultry and eggs, and is of value to every farmer and produce dealer in the country. Although the directions may seem to many to contain much of needless detail, we can assure our readers that every one of them is important, and that what seem to be unessential trifles have an actual value in dollars and cents. Let any one who happens to be in New York visit the large commission house of Mr. Helfrich, 92 Barclay street, any morning before seven or eight o'clock, and he will soon see the difference in value between produce that is properly put up and that which is not. Many thousands of dollars are annually lost to farmers on account of their not knowing the simple fact that poultry for the New York market must not be drawn.—ED.]

DIRECTIONS FOR PACKING AND FORWARDING EGGS TO THE NEW YORK MARKET.

The difference in value of eggs properly put up and those packed in a careless and slovenly manner is very great, and it is not only important that eggs should be placed in market fresh and sound, but should be as clean and bright as possible; therefore, whatever material is used for packing should be bright, clean, free from dust, not musty, and perfectly dry. If possible let it be kiln-dried.

The best material to pack eggs with is *clean, bright, and perfectly dry* rye straw. The least dampness is very injurious, and is sure to spoil more or less of them. The straw should be cut fine and even, from one-half to three-quarters of an inch in length, and entirely free from long pieces. When rye straw can not be obtained, clean, bright, and dry wheat straw may be used. Wheat chaff when perfectly dry and clean is also very good. Oat chaff should *never* be used, as it is too light and springy. Eggs packed in fine-cut straw or clean wheat chaff will sell on an average of one-half to one cent per dozen more than those packed in oats.

Oats are extensively used in this State for packing eggs, but are not so good as cut straw, except when they are not to be sold or used immediately. But in case the eggs are to be held, oats should be used by all means, as eggs packed in straw can not, as a general thing, be kept on hand any length of time with profit. The oats should be of the previous year's growth, clean, bright, and dry (kiln-dried when convenient).

Use for packing nothing but good strong barrels (new if possible), well hooped and nailed, of the size of a flour-barrel; head line the bottom, put a little wisp of long straw or hay

evenly in the bottom of the barrel, then a little fine-cut straw or chaff about two inches thick, then a layer of eggs packed on the sides, little end out or towards the stave, but not so as to touch the stave within an inch and a half, nor should the eggs touch each other in the layer; then put on a layer of cut straw or chaff, and let that be rubbed in well between the eggs with the hand, and between the eggs and the stave with the fingers. Then put in a layer of eggs packed on the sides as before, with at least *one* inch of packing between the layers. After each three or four layers are put in, they should be well shaken down, by putting the barrel-head (or a round board prepared for the purpose) on the packing; press on it hard with one hand, and with the other shake the barrel so as to settle well, repeating this three or four times during the process of filling the barrel; finish with three or four inches of packing over the last layer, and fill so high that the head must be pressed in. Great care should be taken to have the head press *firmly* on the straw so that the eggs can not work loose by handling; but not so tight as to break the eggs. In using oats the same directions are to be followed as in packing with cut straw or chaff, with the addition of a sheet of stiff paper between the hay or straw and the oats, both top and bottom, to prevent any dust of the hay or straw getting into the oats, or the eggs from working through the oats to the surface and being broken on top.

The number of eggs in each barrel should not exceed 70 doz.— $4\frac{1}{2}$ doz. in the first layer, 5 doz. in the second, $5\frac{1}{2}$ doz. in each of the next three layers, 6 doz. in each of the next three layers, $5\frac{1}{2}$ doz. in each of the next three layers, 5 doz. in the next, and $4\frac{1}{2}$ doz. in the last or top layer—making in all thirteen layers, which are enough for an ordinary sized flour-barrel. A good reputation for accuracy in count is very valuable. Shippers who must use second-hand barrels should be very particular in selecting none but good, stiff, strong ones, and be sure that the bottom is well secured, and instead of having the top head to fit in the chine, have a head made out of light material, though tight enough, so that no eggs can be taken out on the way, and a cross-piece, at least one inch thick and three inches wide, cut exactly the length to fit inside of the barrel; press it down tight, and nail with two or three strong nails each side. Mark the number of dozens in each barrel plainly on the top.

In shipping from Ohio and the West from the first of June to the middle of September, the eggs should be carefully "candled" before packing, and be sent by express; at other seasons of the year they can be safely sent by *fast* freight lines.

We think that shippers will find it to their advantage to follow the above instructions, so that their eggs if fresh when packed will be likely to reach this market in such order that they can be sold with much less loss than is usual where proper care is not exercised in packing. No one except those taking out and selling eggs in this market can appreciate the necessity of having the packing *perfectly* dry (kiln-dried if possible), and also of having the eggs *firmly* and *securely* packed in strong and good-looking barrels.

Marking-plates and shipping-cards are freely furnished by dealers to all who desire them. Send invoice by mail of each shipment, giving number of barrels shipped and number of dozens in each separately, also whether sent by express or freight.

DIRECTIONS FOR DRESSING, PACKING, AND FORWARDING POULTRY TO THE NEW YORK MARKET.

First, see that all poultry is well fattened, as the difference in price in our market between fat and poor poultry is very great. Remember that you not only get pay for every pound your poultry gains in fattening, but by improving the quality you gain from one-fourth to one-half in price on the whole.

In fattening poultry it is always the best economy to feed all they will eat. Poultry fattened on corn is yellower and better than that fed on buckwheat or beechnuts.

Keep the birds from food before killing a sufficient length of time to allow the crop to become nearly or quite empty, as full crops are quite detrimental; they are liable to sour, turn black, and buyers object to paying for their worse than useless weight.

The best mode of killing is by opening the neck veins or bleeding them in the month. Deface the neck as little as possible, but be sure and bleed freely. The head may be cut off, but if so the skin should be drawn over the neck-bone and tied after dressing; otherwise the skin will recede from the neck and present a repulsive feature. Most of the poultry sold in this market has the head left on, and this is best when the process of killing has not injured the appearance of the head.

The intestines or crop should not be *drawn* for this market, as there is no demand for drawn poultry, and such must necessarily be sold for much less than if entrails are all left in.

For scalding, the water should be as near to the boiling point as possible without actually boiling. The bird, being held by the legs, should be dipped three or four times, raising it quite out of the water; in this way the water can the more readily penetrate the feathers and act upon the skin. Pick the feathers off immediately after scalding (pin-feathers and all) without breaking the skin. Don't rub them off, as that rubs or breaks the thin outside skin and causes it to turn black. The poultry should next be plumped, which is accomplished by dipping it into scalding water for a few seconds, and then immediately into *clean* cold water for about ten minutes; then hang it up to cool and dry. Be careful not to pack until it has become perfectly cold throughout, but do not allow it to freeze before being packed. This is a matter of importance, for if poultry is packed with the animal heat in it it will be sure to spoil by the time it reaches market.

Most of the dressed poultry sold in this market is scalded, or wet-picked, and such is generally preferred; but for poultry which is intended to be packed to freeze and to hold, we would by all means recommend *dry-picking*, as the poultry will keep longer, and when thawed out will return nearer to its original color, but if scalded it is apt to thaw out black. To dry-pick poultry, kill as before mentioned, but be sure and commence picking the feathers off immediately after bleeding and before the bird gets cold. If it is once cold the feathers are set, and the skin is much more liable to be broken in picking. Too much care can not be exercised in keeping the skin whole. Avoid cutting or bruising the flesh or breaking the bones.

Boxes are the most desirable for packing turkeys, geese, and chickens, but for the latter barrels may be used. Boxes of a capacity of 150 to 300 pounds each should be employed. Larger boxes are inconvenient to handle, and

are more apt to get injured in transit. The objection to barrels is that the birds are apt to be much bent and twisted out of shape. They answer better for chickens and ducks than for turkeys and geese. Use rye straw if possible, but reject whatever is not dry and free from must. Place a layer of straw over the bottom of the box; then pack a layer of poultry, backs up and breasts snugly against one end of the box; the legs should not be cramped up under the body, but straightened out, taking care to stow snugly, filling vacancies with straw. Next a layer of straw, then layer of poultry as before, and so on until full. Have plenty of straw on top, so that the cover will draw down snugly upon the contents to prevent shifting or rubbing on the way.

In packing large lots it is best to put the different kinds in separate packages, and mark gross weight and tare on each package; also the kind contained in it. If when the lots are small, and different kinds are in one package, mark the net weight of each of the different kinds on the side of each package, so that we may know what each parcel contains without going through a whole lot to find what the customers want.

Mark the address plainly on the lid of each package, also the initials or "number" of consignor, that we may know who to credit the shipment to, and forward immediately by mail a full invoice giving number of packages shipped and net weight of each kind separately. We often receive packages without the shipper's name or initial on them. All such are sold and placed to the unknown account, awaiting to hear from the proper owner, which often gives unpleasant feeling to shippers. If shippers will be careful in putting their name or initial on every package, and send a full invoice of each shipment, there will usually be no mistaking on the part of the consignee.

Ship by express unless situated on some line that will be sure to carry the packages through nearly as quick by freight.

Poultry designed for Thanksgiving or for other of the holidays should be large, fat, and well dressed, and should be in market at least two or three days before the holiday. Remember that railroad and express companies are always crowded with freight on such occasions, and unless started in time it will surely arrive too late. Small or inferior poultry, if sent at all, should be sent at other times, as the demand then is almost exclusively for large, fat, and nice poultry.

Ogden Farm Papers.—No. 42.

In the June number of this series (No. 40) there was given an account of the performances of Mr. Robeson's herd of Jerseys. In that account the quantity of butter that would have been made had all the cream been used was estimated at 407 lbs per cow per annum. I have now received from Mr. Robeson an actual report for the month of April, which forms a natural sequel to the former statement, as it gives the exact yield of butter per quart of cream on the average of the herd.

The total production of milk for the month was 4,735½ lbs. There were 11 animals milked; 4 of these were 2-year old heifers, and 1 cow was drying off for calving. 5 cows were milked the whole month, and 6 cows only a portion of the month. The lactometer showed an average percentage of cream of 14²⁹/₁₀₀. 3,440½ lbs of

fresh milk was fed to calves. The remaining 1,295 lbs of milk was equal (at 2¹⁵/₁₀₀ lbs) to say 602 quarts. Of this there was used (fresh) in the house 30 quarts. The remainder, 572 quarts, was set for cream. The lactometer rate called for 85½ quarts of cream. There were actually skimmed 93½ quarts of this, 23½ quarts were used by the family, and the remainder (71 quarts) was churned. The product of butter was 70⁴/₁₆ lbs, being 1 lb butter to 6²⁷/₁₀₀ quarts of milk, in an experiment with 469 quarts. Supposing the actual skimming of the milk of the whole herd to have exceeded my estimate (June No.) in the same proportion as shown above (86½ to 93½) then each cow of the herd during the previous year should have yielded not 430 quarts of cream per cow as there stated, but 470 quarts, and should have made an average not of 407 lbs. of butter per cow, but of 445 lbs; so that my computation was well within the mark.

A correspondent in Chillicothe, Ohio, says he has tried the deep can system and likes it. He asks whether our milk ever sours in 24 hours, and if not, whether we sour the cream before churning. Neither. The milk, at a temperature of 50°, keeps sweet even for 36 hours when we allow it to stand that long, and we keep the cream sweet (by keeping it cool) until it is churned.

I am often asked whether Jersey cattle have not the objection that they have a large preponderance of bull calves. This has not been our experience; nor, so far as an extensive correspondence with Jersey breeders allows me to judge, has it been the experience with most other breeds. I think accurate statistics would show that in this breed as in other breeds of cattle (and as in the human race) there are on the average about 105 females born to each 100 males. This year, thus far, we have had 24 calves—18 of them heifers. To maintain my proportion we shall probably have our luck run the other way before many years; and then, if we are like the rest of our fellows, we shall grumble so audibly that the world will think Jersey cows have heifer calves only by exception.

A paragraph has been going the rounds of the papers about some marvelous butter making in Illinois. So and so many hundred pounds were made in a day; the whole milk was churned twice a day, just as it came from the udder; a steam-engine did this, and a steam-engine did that; and the wonderful result in quantity of butter made, to say nothing of the quality—which was the best ever sent to the Eastern markets—was to throw all the old-fashioned processes into the back-ground. There was no setting of milk in shallow pans to be cooled by exposure to the air, nor in deep cans to be cooled by the contact of water—no making of airy milk-rooms nor of cool cellars—but, slap dash! milk your cows, pour the milk into a mammoth churn, turn on the steam, light your pipe, and there you are! You have only to wait comfortably for the mass of butter which you will put into a steam butter worker, when all the buttermilk will be squeezed out of it, and when it will be made ready for the panting locomotive to whisk off to market. Verily here was a revolution. The romance of dairying is gone; and the rosy maid, with her well washed arms bare to the shoulder, may roll down her sleeves, and apply herself to the steam-driven sewing-machine in a stove-heated room now, and be happy. After this account had been

sent me from several sources, like the Frenchman, "Zen I began to suspect somesing," and I wrote to the journal in which the marvel first appeared and got from its editor the address of the proprietors of this really remarkable dairy—Messrs. I. Boies & Son, Marengo, Ill. I wrote to them asking what was the truth of the matter, and have received the following very satisfactory reply: "There is but a small part of the article that is correct. We keep a dairy of 135 cows, which we intend to have come in in the fall—September and October. These cows give milk 10 months and would give longer, but we take pains to let them go dry 60 days. You will perceive that we do not make much butter in hot weather. We would here say that we buy 4,000 lbs. of milk per day of our neighbors. They deliver as much milk in winter as in summer. Our cows are fed 8 quarts of corn and oatmeal (mixed) per day for every day they give milk. In winter we give them every day in addition to the meal a large load of corn in the shuck, also what nice early cut hay they will consume. (You will perceive that we have a good manure heap.) The milk is set as soon as it is drawn in the common 10-quart pan. As soon as it is sour it is churned immediately. We use the Swan-box churn. Churn every day, Sundays excepted. We make about 300 lbs. of butter per cow, which brings us 40c. per lb. at home.

"The sour milk we feed to hogs which we find very profitable—low as hogs are. This manner of farming brings land up to a very good state of fertility. Our corn last year produced 100 bushels per acre. We are all poor farmers compared with what we ought to be. We have 350 acres of land. We intend soon to feed clover cut green to our cows. Corn and oatmeal costs us \$15 per ton. We use a white-ash inclined-plane butter-worker. Butter is taken from the churn salted, set for 24 hours, then worked and packed. We make about 250 lbs. per day."

There! that is the whole story, and a very satisfactory story it is, too. The old customs are not so ruthlessly set aside as the paragraph-maker would have us believe. This butter is made very much in the "good old way," and there is no doubt that it is well made and of uniform quality. The Messrs. Boies are "poor farmers compared with what they ought to be," they modestly say. Would that there were more such "poor farmers" all over the land. The manure made by 135 cows, fed as these are, must pile up a heap that will make itself felt on 350 acres of land—especially when supplemented by the droppings of hogs enough to consume not only the home-made milk but 4,000 lbs. a day of purchased milk besides. Now, why won't some of our agricultural colleges teach their young men how to follow this example? how to invest capital in such a safe and surely profitable business, and to manage it with skill and economy. The market for such butter as may thus be made will never fail to be a paying one, and such a course of cultivation is bound to make any ordinarily good farmer to "blossom like the rose," and with more and more roses every year. An enterprise of this sort need not be confined to the West. There are thousands of Eastern farms on which it would be equally successful, for the higher price of butter and pork would easily balance the higher cost of grain. Let us have it tried. It is not necessary to start on such a large scale. Any young man with 50 acres of land and a moderate capital can easily build up even a larger business in time.

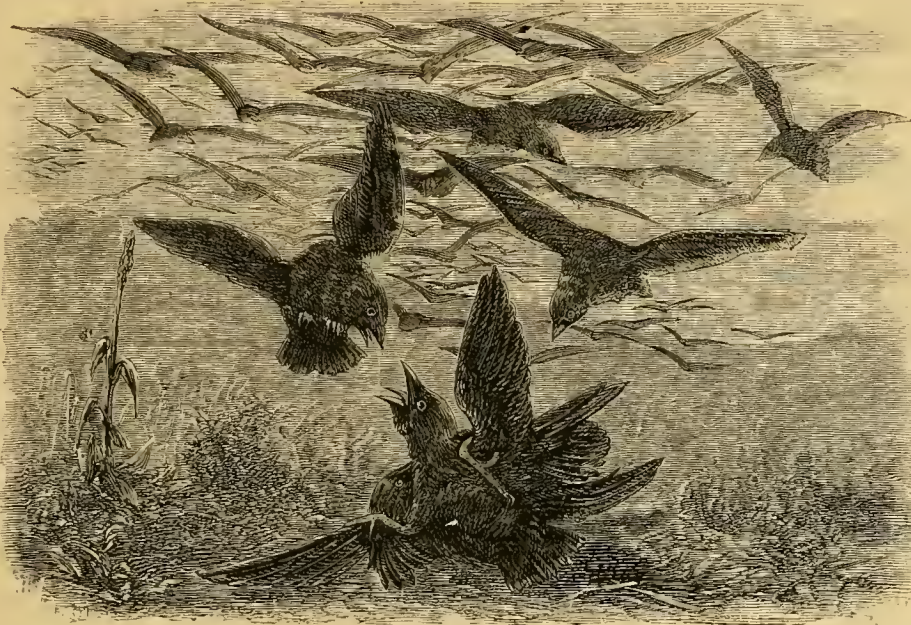
A Living Crow-trap.

If a jury of twelve farmers were to decide whether the crow was an injurious bird or not, they would probably stand eleven for conviction and one for acquittal. There are many charges brought against the crow, and some of them are, unfortunately, founded in fact. That it eats some grubs, mice, and other vermin we admit, and we do not think its pulling up a few kernels of corn an unpardonable offense. Our principal charge against the bird, and it is a most serious one, is its fondness for eggs. Not only will it rob outlying hens and turkeys' nests, but, what is of more consequence, it robs and breaks up the nests of insect-eating birds. When crows are numerous small birds are scarce and insects plenty. We have never seen any claims in favor of the crow that would offset this important fault. Most farmers look upon the crow as a bird to be killed, but when they come to put their designs into execution they find they have to contend with an acute strategist. That crows "smell powder" has long been a popular impression. However this may be, let any one undertake to get within shot of a crow with a gun, and he will soon become a convert to the general belief. Traps have to be set very carefully to be effective, and unless the farmer resorts to poisoning, the number of crows he will dispose of in a season will not be large. This

wariness of the bird allows the various kinds of scarecrows to be effective, and we may often see cast-off clothing made into a resemblance of a man so rude that the crow soon finds out the cheat. Strings stretched across the field are more effective than effigies, as they give a hint of some concealed danger, and the birds find it safest to avoid the locality.

Crows are on bad terms with most other birds, large and small, and they and the hawks have a long standing quarrel which is renewed whenever occasion offers. A friend of ours, taking advantage of this enmity between the two, and acting upon the principle of setting a thief to catch a thief, bethought him to make use of a hawk he had captured as a crow-trap. The hawk, a large and powerful one, was carefully fastened by its wings, and by means of

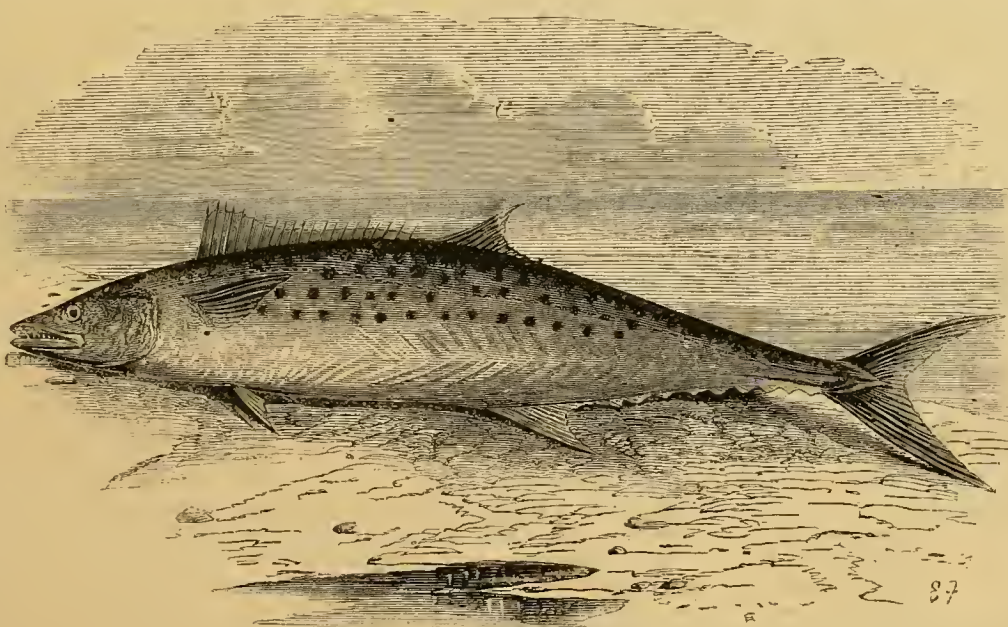
some strong pegs back down to the ground. The crows, seeing their old enemy in an apparently helpless condition, gathered from all quarters, and became very bold in their demonstrations of exultation. The hawk, though confined, was not disabled, and had free use of



A LIVING CROW-TRAP.

its claws. Whenever a crow came within reach, it was seized by the hawk and soon disposed of by its powerful talons. The noise of the contest drew more crows, and our friend describes the contest as a most amusing one, and resulting disastrously for the crows. This was a trap which even their proverbial shyness did not teach them to refuse. The inventor of this trap—which is not patented—being an artist, has given us the above sketch of the scene.

PRESERVATION OF EGGS.—Eggs are preserved



SPANISH MACKEREL.

in France by smearing them all over with a solution of beeswax in double the quantity of olive oil with the finger. The shell is rendered air-tight, and when packed in bran or chaff and kept dry the eggs may be preserved for months. Rubbing the eggs with linseed oil has been successful in preserving them for six months.

The Spanish Mackerel.

In the markets of our seaboard cities the Spanish Mackerel brings the highest price of any of our salt-water fishes. It is as costly as its relative the common mackerel is cheap. It

is often the case that while the last-named is selling for 20 or 25 cents each, its brother with the Spanish prefix is sold for \$1 a pound. They both belong to the same family—indeed, to the same genus, and have many characters in common. The common mackerel is found in all European seas, as well as our own, while, so far as we are informed, the other is peculiar to our coast. The common mackerel is an exceedingly beautiful fish, and is readily distinguished by the steel-blue color of the upper part of its body, upon which are 36 stripes of darker blue. The Spanish Mackerel is colored quite differently, being of a light

green color above, with numerous wavy lines of darker green; upon the sides are several rows of grayish brown spots; the belly of the fish is of a lighter color than the upper part, and when fresh shows metallic reflections. While similar in general appearance to the common species, these markings at once distinguish it. Besides, it is a much larger fish, as they generally weigh two to four pounds, and sometimes as heavy as eight pounds. The largest one on record was caught at Sandy Hook in 1862; this weighed twenty pounds,

and was over four feet long. The Spanish Mackerel is in season from June to September, and is justly esteemed as the finest flavored of all salt-water fish. This species was named by Dr. Storer in honor of Dr. De Kay, the author of the Report on Fishes in the Natural History of the State of New York, and bears the scientific name of *Scomber Dekayi*. This valuable fish is caught by fishermen along shore in their "pounds." These are nets so placed that fish go in at a wide entrance, and

become so confused by the various turns that they rarely find their way out. The "pounds" are taken up with every tide, and the fisherman considers himself lucky if he finds a goodly number of Spanish Mackerel in his haul. The principal sale of this fish is to the fashionable hotels and restaurants where high prices rule.

Walks and Talks on the Farm.—No. 116.

"We shall have to give up growing wheat." So said a farmer of one of the best wheat-growing towns in Western New York. "In my neighborhood," said another, "we shall not have wheat enough for seed and for bread."

We are certainly having hard times. I have not seen a *whole field* of good wheat this year. Occasionally one finds a few acres in a field that will yield 25 or 30 bushels per acre, but the other parts of the field are hardly worth cutting. On many farms spring crops are equally poor. My German neighbor, Mr. Jacobs, whom I have before alluded to as one of our most successful and prosperous farmers, plowed up half of his wheat this spring and sowed it to barley. He afterwards plowed up half the barley and planted the land to beans.

Farmers are beginning to ask what all this means. And we are favored with a great variety of opinions. "Farming is played out," says one. "Our land is exhausted," says another. "I tell you," says the Squire, who owns three large farms and has just bought another, "we can't stand these high wages." "We shall have to go back to the old-fashioned plan of plowing under clover," says the Deacon, and, as usual, he is more than half right. In fact, there is some truth in all these opinions; but no one of them, it seems to me, fully meets the case. To say that "farming is played out" is about as reasonable as to say that men can live without eating. And yet it is quite true that there is a kind of farming that is no longer profitable. I wish it *was* played out. Our land is *not* exhausted. Wages are too high. But what are you going to do about it? Plowing under clover will help a good deal, but we need something more and better.

In years past we have had as poor crops as now, and poorer prices. But our expenses were not so large. If we go back to old-fashioned farming we must go back to old-fashioned modes of living. In a drive of a few miles last Saturday evening I passed six or eight farm-houses where the young people were playing croquet. One farmer was himself mowing the grass with a lawn-mower; three cheerful-looking farmers, with hoes and rakes in their hands, were cleaning up the grounds and walks around the church at Ogden Center. A stranger would not suspect that times were hard.

The truth is, farming is not up to the age; and instead of looking back we must push forward. Our expenses are far greater than formerly. We live better, dress better, and have more comforts. We do not want to give up these advantages. We do not want to travel by stage, or go back to bake-ovens and tallow candles.

Old-fashioned farming was all very well, and so was old-fashioned living. The two went very well together. But modern farm-life and old-style agriculture can not long continue. One or the other must be abandoned.

Farm implements, tools, and machines are vastly superior to those we had 25 years ago. So are our facilities for marketing our produce. But do we raise any more or better grass now than when it had to be cut with a scythe? or is our wheat of better quality than it was when reapers were unknown? We have better plows, harrows, and cultivators—but is our land cleaner and mellow?

Farming is certainly behind the age, and there is a grand opportunity for those able and willing to push ahead. Farmers have to com-

pete with each other, at home and abroad; and that man will make the most money who can raise the best article at the least cost. If there are any unjust laws, taxes, or monopolies injurious to agriculture let us do all we can to remove them. This is simply our duty. But in the meantime let us not forget to improve our farms, our stock, and ourselves.

"But," asks the Squire, "will improved farming pay?"

"That's the question," remarks the Deacon, rubbing his hands, "we are all willing enough to make money if we could see our way clear."

"Yes," says the Squire, "no prudent farmer wants to run any risk."

"What nonsense, Squire," I remarked, "sensible men sometimes do talk. We have to run more or less risk every day we live. We can not avoid it. A farmer can not keep a cow, a horse, a sheep, or a pig without risk. Life is made up of risks. A farmer takes more risk than almost any other man; and the poorer he farms the more risk he takes."

"I would like to know how you make that out," says the Squire.

"Don't you recollect," I replied, "that this spring I wanted you to summer-fallow that clayey field where you were going to sow oats, telling you that the spring was so late and the land so wet that if we had a dry summer you would not get your seed back. 'I'll risk it,' you said; and you did risk it, and now see the result! The oats on the clay spots did not germinate. There are thistles by the thousand, and annual weeds by the million. These will go to seed before the oats are ready to harvest. The seeds will fall on the ground. You will sow the field to wheat this fall. You will be sure of a full crop of weeds, but stand a poor chance of getting more than half a crop of wheat. The next season your clover will be full of weeds, many of which will go to seed and be carried to the barn-yard in the hay, thence to be spread over the farm in the manure. Truly you were a plucky man to risk so much for the sake of gaining so little."

The Squire did not like this kind of talk. He is rich, and is adding farm to farm, and is utterly without excuse for not cultivating his land better. He can afford to wait, but fails to realize the truth that the money spent in thoroughly cleaning a piece of land should be regarded to a considerable extent as a permanent investment. If the improvement will pay a good interest that is all that should be expected. I think it might be shown that a good summer-fallow in the case alluded to would have paid 50 per cent per annum for the next five years.

I do not advise any one to engage in farming. That is a matter I have nothing to do with. I do not urge a farmer who thinks he can do better in some other business to stick to the farm. He must act according to his own best judgment. If he tells me farming will not pay, I do not propose to argue the question. I only say, if you are going to farm, farm well. I do not say good farming will pay. I only say it will pay *far* better than poor farming.

I hope and believe that this nation is going to be the grandest nation on earth. I believe it will be a great manufacturing and commercial nation. I want to see good wheat and good meat, good potatoes and good fruit, and all the other necessities of life sold at reasonable prices. And while I am a farmer, and all my sympathies are with farmers, I must say that it would be a terrible calamity if prices of meat

and wheat should permanently be high enough to make poor farming profitable. I have not the slightest fear of any such result. Still, when we consider the rapid increase in our population, and the marvelous development in mining, manufacturing, railroad building, commerce, and trade, and then take a careful look at our agriculture, it is easy to imagine that a few successive "bad seasons" would produce a famine with all its accompanying horrors. It would not be worth while making such a remark as this if it were not for the fact that *good farming* is the best and only safeguard we have against the direful effects of a bad season.

Half the farmers of the United States to-day adopt a system, if system it may be called, that leaves them entirely at the mercy of the season. A late, wet spring, followed by a severe drouth and a horde of insects, cuts off the spring grains. A cold wet summer and early frosts in autumn destroy the corn crop. A dry autumn so weakens the plants of wheat on poor, ill-prepared land that they can not stand a severe winter or cold winds in early spring. If we try to avoid this evil by early sowing, the chances are that the Hessian-fly will destroy half the crop. The only remedy is better farming. This is a very unpopular doctrine, but it is true. There is no royal road to growing good crops of winter wheat. We must make our land rich enough, and mellow enough, and moist enough to secure a strong, healthy, vigorous root growth in the fall before winter sets in. Land full of weeds, sown with a spring crop, and the weeds suffered to grow for some weeks after harvest before plowing, *may* produce a fair crop of wheat, but I ask any sensible farmer if he has a right to expect it. I should about as soon expect to draw a prize in a lottery, or cure dyspepsia with patent medicine.

What I want to say to any young farmer reader of the *American Agriculturist* who honors me with his confidence is this: Make up your mind to steadily improve the condition of your land; above all, kill the weeds; under-drain; grow more clover, peas, and roots, and consume them all on the farm. Make more and better manure. Buy bran to feed out. Sell timothy hay, if need be, but never sell clover hay. Sell straw whenever, as now in this section, it is worth half as much per ton as bran. Study the chemistry of manures. There are many places where artificial fertilizers can be used to great advantage. Improve your stock; feed liberally. Raise a few thorough-breds, and gradually work your way into the business; but do not be in a hurry. Set out choice fruit trees, and take care of them. Spend moderately. Live within your income. Do not discount your prospects. And again I say *kill the weeds*. Cultivate the land thoroughly. Make the weed-seeds grow, and then kill the young plants. I feel sure that the young farmer who follows this advice will not have to wait many years before getting his reward. I look upon it as absolutely certain that we shall get good prices for farm produce in the near future. I fear we shall get extravagantly high prices. I fear still more that few farmers will profit by them. Prices never have been and never can be high enough to make poor farming profitable. You must get your land in good condition now, and thus be ready to avail yourself of the high prices when they come—as come they will.

An old gentleman who is an entire stranger to me, but who, I imagine, was thinking of buying a farm in this neighborhood, rode past here

yesterday with his wife, and stopped a moment to remark: "You ought to write a piece in the *Agriculturist* about these thistles—these *Canada* thistles—that are growing on the Squire's farm as well as on the Deacon's." As he drove off, I heard him mutter to his wife in a tone of disgust, "Twenty-five thousand dollars for 160 acres." He referred to a run-down farm in the neighborhood that would be well worth the money asked for it provided it was drained and clean, but which in its present condition will not pay the interest on \$50 per acre.

It amused me, however, to be told to "write a piece" for the *Agriculturist* on killing weeds. Nothing would please me better. I have weeds on the brain. I think about weeds, talk about weeds, and dream about weeds. If I had to "write a piece" I would certainly select weeds. If I had to preach a sermon the text would probably be: "I went by the field of the slothful and by the vineyard of the man void of understanding; and, lo, it was all grown over with thorns, and nettles had covered the face thereof." I think the Squire would give up his pew, and the Deacon would suggest the next morning that "there was some dissatisfaction in the church, and that it was thought a change of climate would be good for me." Write a piece about weeds! What was the old gentleman thinking about? Does he want to buy my farm? Does he want this neighborhood to become too hot for me? The Deacon has already threatened to "write a piece" for the *Agriculturist* pointing out the weak spots in my system of farming. The Deacon has been talking the matter over with some of the neighbors. Last fall I had two or three hundred bushels of mangels frozen in the ground. This is to be one of the charges. They forget that I saved three thousand bushels. Then I had half an acre of turnips frozen in the ground. But I saved four or five acres that would yield eight or nine hundred bushels per acre. The charge in brief is, "He knows how to raise good crops, but does not know how to take care of them." This is letting me off pretty easy. I could make out a better case. On the whole, I think I will follow the old gentleman's advice, and write a "piece" about weeds. The weather is very hot, and "composing" is hard work, but I will try my hand at a short "composition."

"A weed is a plant growing where you do not want it to grow. Thistles are not weeds when grown, as they are in France, to make perfume. The thistles growing in the Deacon's wheat are weeds. He does not want them there. If you have six plants of corn in a hill where you only want four two of them are weeds. A dead weed is not a weed. A growing weed pumps up water out of the ground. The weeds in an acre of the Deacon's clover pump up more water in a day than all his animals drink in a month. Weeds propagate faster than rats. I have got more rats than the Deacon, but the Deacon beats me on weeds. The boys shoot the rats. Yesterday they shot two and scared away a dozen. Next year they will come back again. The Deacon kills a hundred of his weeds and buries a thousand. Next spring they will come up by the million. You can't get rid of weeds unless you kill them. If you do not kill them they will kill you. They are worse than foot-rot in sheep. They spread faster than caterpillars on currant bushes, or than the canker-worms on apple-trees. Some of the orchards in this neighborhood look as though they had been sprinkled over with kerosene and set fire to. The worms have eaten off

every leaf. Some farmers keep off the insects by putting tar bands round the trunks of the trees in spring; some don't. They think it is no use fighting the worms. Some farmers think it is no use killing the weeds. It is natural for the soil to produce weeds. They say you can't kill them. The Deacon does not say weeds can't be killed, but he does not try to kill them. He hoes his corn. I don't hoe my corn. I hoe the weeds. I would kill the weeds if there was no corn.

I am not sure that the Deacon would. The Deacon never summer-fallows. He never fall-fallows. He never tries to make the weeds grow. He tries to smother them up for a few months. He does not kill the roots. He does not make the weed-seeds grow and then kill the young plants. The weeds on his farm are getting worse and worse. My farm used to be worse than his; now some of it is cleaner than his. I am fighting the weeds. He lets them grow, and is waiting for something to turn up. There are thousands of farmers doing the same thing. The weeds cost us more than all our state, national, and local taxes; more than all our schools, churches, and newspapers. They are more expensive than children's boots and ladies' bonnets. They are as bad as clears and fast horses. The horse may break his neck, and you will get rid of him; but the weeds will stick tighter than a mortgage, and run up faster than compound interest or a grocery bill. They are like bad habits. You must not tamper with them. No half-way measures will answer. The only way to stop using tobacco is to stop. The only way to kill weeds is to kill them."

I hope the old gentleman will be pleased with my "composition." I hope when he visits this neighborhood again he will find fewer weeds. Land worth \$150 per acre ought to produce something better than thistles, red-root, quack-grass, and chess.

Preparing for Hedge-rows.

We have recently had an opportunity of inspecting hundreds of hedge-rows and many miles of newly-planted hedges or newly-broken prairie on which it is intended to plant hedges. It is quite safe to say that less than one in a hundred of the existing hedges are of any use as barriers against stock of any kind, and that the same proportion of hedges newly planted promise no better results. This may be thought to be an excessively severe judgment, but it is a deliberate one, and we feel sure it will be sustained by the results. In the first place, the planting has been imperfect; then the care of the hedge has been neglectful; there has been a sad want of training; and the result is that most of the hedges consist of a row of spindling bushes, bare at the bottom, where they ought to present a mass of branches and leaves; with sprawling tops straggling skywards, and show-

ing plentifully scattered gaps in which dead bushes or vacant spaces appear. Others are simply rows of small trees ten or twelve feet high, with bare stems and intermingled tops. These may serve as wind-breaks, but the trees are too far apart to serve a useful purpose as hedges without help from wire or rails.

Rarely we have seen a hedge which has been pruned, plashed, and trained into such a shape as will make it serviceable. The numberless



Fig. 1.—BADLY BROKEN HEDGE-ROW.

new breakings for hedge-rows we have seen, all wrongly plowed, render it easy to recognize the sufficient reasons for these costly failures. For a useless hedge, after one has planted and waited patiently several years for it to grow, is a costly failure; and when the fact begins to dawn upon the owner's mind that he has made an error and his labor has been lost, the disappointment will be bitter indeed.

The general plan pursued is to plow a ridge with a back-furrow in the center as shown at figure 1. Here there is an unbroken strip of sod (when it is on prairie) or hard soil (on fallow) in



Fig. 2.—EFFECT OF PLANTING ON FIG. 1.

the center. When this is harrowed a fair enough surface appears, but it is a fallacious hope to expect young plants to grow or thrive with such an impenetrable bed of soil beneath them (fig. 2). The first growth is weak, irregular, and many vacant spots occur. "Thus bad begins, but worse remains behind." Unfortunate in its birth, the hedge is neglected in its youth, untrained and unchecked in its mature age, and it ends by becoming a mere cumberer of the ground, costly and troublesome to get rid of, and useless and unsightly while it remains.

Now, we would suggest a different treatment. The hedge-row should be plowed with an open furrow in the center, as shown in fig. 3. When the sod is rotted the row should be harrowed, and the furrow should be closed by twice gathering the ridge. Then there is a deep, mellow, dry bed for the plants, in which the roots have



Fig. 3.—PROPERLY BROKEN HEDGE-ROW.

room to go down into the subsoil and spread beneath the surface and gather ample nutriment. As the growth of root so will be the growth of the aerial part of the plant. Fig. 4 shows the shape of the ridge as thus prepared. The seed should be sown in a nursery bed in



Fig. 4.—EFFECT OF PLANTING ON FIG. 3.

rows, and the young plants well cultivated. Take up in the fall and "heel in," and the second spring set the thriest in the hedge-row. A double row hedge will be found far preferable both as a barrier against stock and as a wind-

break, and will resist the powerful prairie breezes far better than a single row. The rows of plants should be two feet apart. Furrows should be run along the rows where the young plants are to be set. The plants are then laid with their roots spread on the mellow soil on one side of the furrow. Then another furrow is turned on to the roots, and the plants which may have been disarranged are restored by hand. A tread of the foot will consolidate the earth around each plant. This is the best and most rapid method of planting. A hedge thus planted will have every chance of becoming a success and answering every purpose that it

rinsing the sides at every stroke. This prevents the accumulation of "dead" cream on the sides of the churn—that is, of half-churned cream which becomes incorporated with the butter and gives it a "marbled" appearance, which materially affects its value in the market; while the dead cream, containing caseine, essentially injures the keeping quality of the butter.

Harvesting Beans.

Beans are very easily damaged and reduced in value in harvesting. From the time they are gathered until they are thrashed and marketed they should be kept dry and protected from mildew. Exposure to damp causes them to be spotted or discolored, in which case they are either unsalable or can be disposed of only at a much reduced price.

As soon as the beans are ripe they should be pulled. This may be conveniently done by passing down between two rows, commencing so that the fence is at the left hand and the field at the right, and pulling the plants in both rows, laying them over on the right-hand row; then passing between the next two rows, gathering the beans, and laying them over towards those already gathered. Before the dew falls the beans should be stacked. To do this, a pole six feet long should be stuck firmly into the ground. Then short pieces of rails should be laid on each side of the pole. The beans should be laid on these rails the roots all one way. One moderately sized bunch should be laid on each side of the stake or pole. Then other bunches should

be laid across the first ones, as shown in fig. 1, and the roots kept always on the same side of the stack. This is to prevent the earth from falling in amongst the beans and discoloring them. In this way the stack is carefully built up, and on reaching the top of the stake a cap of straw is fastened around it, and spread so as to shed rain and keep the beans dry. The stack is so open and narrow that the wind passes freely through it, and curing goes on rapidly. When they are sufficiently cured they may be hauled to the barn and thrashed, either with the flail or the machine with the concave raised, and winnowed and bagged for market.

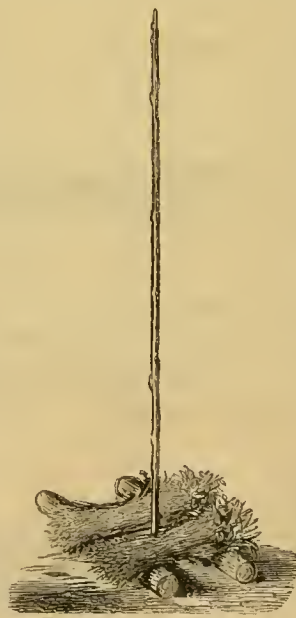


Fig. 1.—STACKING BEANS.

Although stock will not eat beans raw, when cooked they are readily eaten by swine, and furnish an excellent and remarkably nutritious

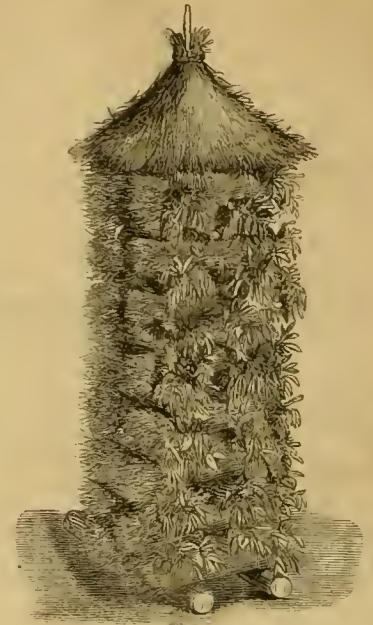
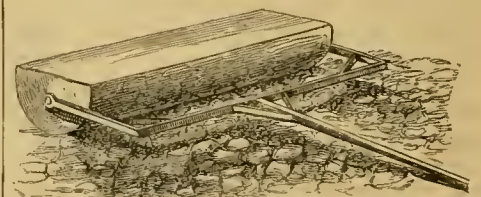


Fig. 2.—STACK COMPLETED.

feed, which is rich in flesh-forming material. For the farmer himself they are a most excellent and nutritious food, and best when boiled and eaten without the usual pork, but accompanied by plain butter and salt and pepper.

A Log Clod-Crusher.

A "Young Farmer" may make for himself a very handy implement for crushing the clods in a summer-fallow by taking a half of a good-sized log split through the center, and affixing to it a tongue or a pair of thills by which it may be drawn. It is better to take a white-oak log cut in the winter or in the summer when the bark is firmly attached, and one with very coarse rough bark will be the best. The bark will peel from a log cut in April or May. The engraving

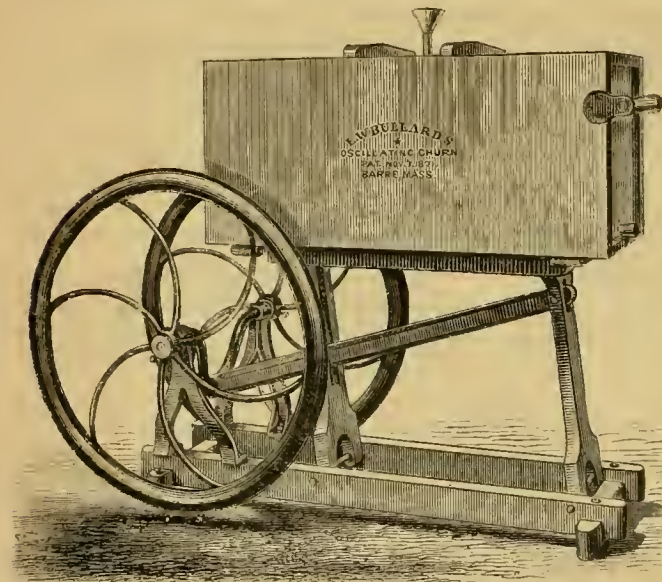


LOG CLOD-CRUSHER.

given on this page will sufficiently show how the implement is to be put together. When out of use it should be kept in a dry place with the bark turned upwards.

Packing Wool.

In reply to a "Texas Farmer," we give the following hints about packing wool for market. Like all other produce, wool needs to come to market in a proper shape, or it fails to realize the highest price. In all flocks there are different grades of fleeces. If these are packed into bags without having been sorted, the wool will probably bring only the price of the lowest quality amongst the lot of fleeces. If the fleeces are badly tied, and in the packing are tumbled into the bags without any order, when unpacked they will probably be found mixed together into an irregular mass, which will still further de-



BULLARD'S OSCILLATING CHURN.

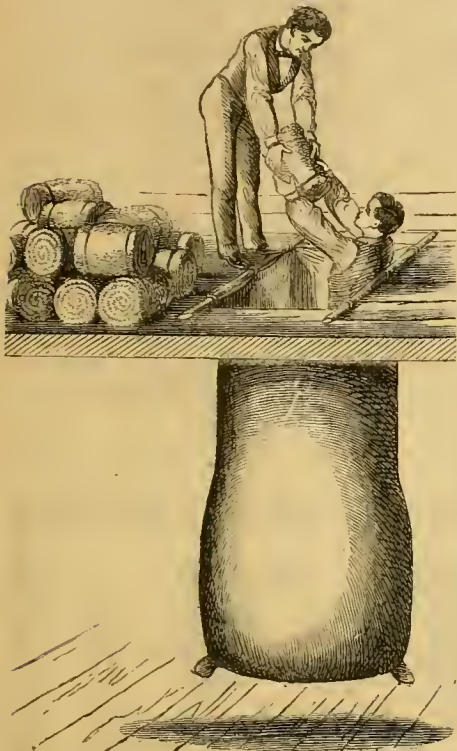
may be intended for. Of the future treatment of the growing hedge we hope to speak another time. That hedge-growing on the treeless, absolutely treeless, plains of the far West is and will be a positive need let no one doubt. Present plans for avoiding the need of hedges by herding stock can be but temporary. Fences must be had where stock is kept, and farmers can not exist without stock. Within five years the present occupiers of Western Kansas and Nebraska can not remain with their farms unfenced, at least around the boundaries of the pastures; and many other localities in the West will feel the same need. The planting of fences will then become an instant work, and the work must be done in such a way as to be permanently useful, or great expense will be wasted.

Bullard's Churn.

BY GEORGE E. WARING, JR., OF OGDEN FARM.

The churn of which we give an illustration is patented by E. W. Bullard, of Barre, Mass. The churn part is a plain box, without paddles or cleats inside. It will churn about ten gallons of cream at a time. The box is fitted to an oscillating table, but may easily be taken off for airing. The operator takes hold of the rung at the end and pushes it backward and forward. The fly-wheels regulate and continue the movement. It is very simple, and not liable to get out of order. It takes somewhat less labor than the barrel churn. In our experience with it, we find that one man works it with less labor than two men do the barrel churn, holding one-half more cream than this one does, so that there is a saving of 25 per cent in the labor. The great advantage lies in the continued swashing of the whole mass of the cream,

preciate the price. For these reasons the fleeces should be sorted, the coarse and fine placed by themselves, and they should be neatly rolled and securely tied with as little twine as may be needed. Twice around the fleece and once across from end to end will be amply sufficient. If the fleece is firmly rolled, and not pulled apart in the shearing, it may be safely tied by two strings, one around each end of the roll.



PACKING WOOL.

After they are sorted, the fleeces should be evenly and closely packed into the bags. A bag of the usual kind, as shown in the engraving, is suspended through a trap-door in the floor of a store-room, and a person who gets into the sack takes the fleeces as they are handed to him by another hand on the floor, and places them evenly in the sack, and presses them firmly down by standing upon them. As the wool approaches the upper part of the sack the standing position is changed for the more convenient one of kneeling. When full, the sack is sewed up tightly across the top, and the corners, filled with a handful of tags, are tied so as to form handles by which the bag may be moved about. The sacks should be distinctly marked with the owner's brand and the weight, and are then ready for shipment to market.

How to Heat a Dairy.

BY GEORGE E. WARING, JR., OF OGDEN FARM.

It has been one of our most troublesome problems to find a suitable mode of heating the dairy in winter time. Various stoves have been tried, but they were all subject to the objection that they made dust, smoke, and gas—all of which are deleterious in a well-ordered dairy. Then, too, it was necessary to heat the buttery to about 60°, and desirable to keep the room where the milk is set, and which is at a lower level, colder than this, while excluding frost. We have at last hit on a plan, shown in the accompanying illustrations, which accomplishes all that is desired.

Fig. 1 shows the plan of the three rooms, and the arrangement of the water-pipes and boiler.

Fig. 2 shows the section of the buildings, the boiler-house being there moved around to the end of the pool-room to show the manner of its connection.

The boiler is made of copper, and is what is known in the trade as a "Tanner's Boiler." It cost \$28 (new) in New York. It is a hollow double cone, with a place in the middle for fire. The draught can be so regulated that fire may be kept all night with less than a peck of coal;

and as it stands in a detached building it may make as much dirt and smoke as it likes. There are two openings into the part which contains the water—two 1½-inch pipes, one at the top and one near the bottom. These are connected, by means of lead pipe, with two iron water-pipes (4-inch) such as are used in green-houses, which lie one above the other, and run along the top of the stone wall above the pool in which the deep cans are set. Thence they enter the winter buttery, following along two sides and a part of another. The ends of both of these pipes deliver into the side of an upright expansion pipe of the same size, which is open at the top. This brings them into connection with each other.

At the bottom of the boiler there is a spout, from which the plug may be drawn when it is desired to empty out the water. This should be done at least once a year to remove any sediment that may have been deposited in the boiler, and it is well enough to leave the apparatus empty during warm weather. To fill the pipes and boiler, water is poured into the expansion pipe until it is filled a little above the upper flow-pipe. When heated, the water expands, and there should not be so much in the upright pipe that it will flow or boil over. Of course, the pipes will radiate more or less heat according to the rapidity of the firing. They can easily be made boiling hot, and in the case described the water has sometimes been boiled so fast as to fly to the ceiling above the expansion pipe, which is about 45 feet from the fire. When the water begins to grow warm, it begins to flow, the hot water passing out through the upper opening from the boiler, and the cold entering at the lower—the circulation being constant through the whole system, and heat being radiated at all points. In the pool-room, the pipes are placed so high above the water that they have little effect on it. They simply keep out the frost. There are in this room only about 20 square feet

of radiating surface. In the buttery there are about 60 square feet, and it is so near the floor as to warm the whole room; so that, with a double sash over the window, we have no difficulty in keeping it up to 55° or 60° in the coldest weather.

The whole apparatus is entirely satisfactory. It is cheap, simple, easily managed, and effective. We rarely use a half-bushel of coal (nut size) in the coldest weather, and it is worthy

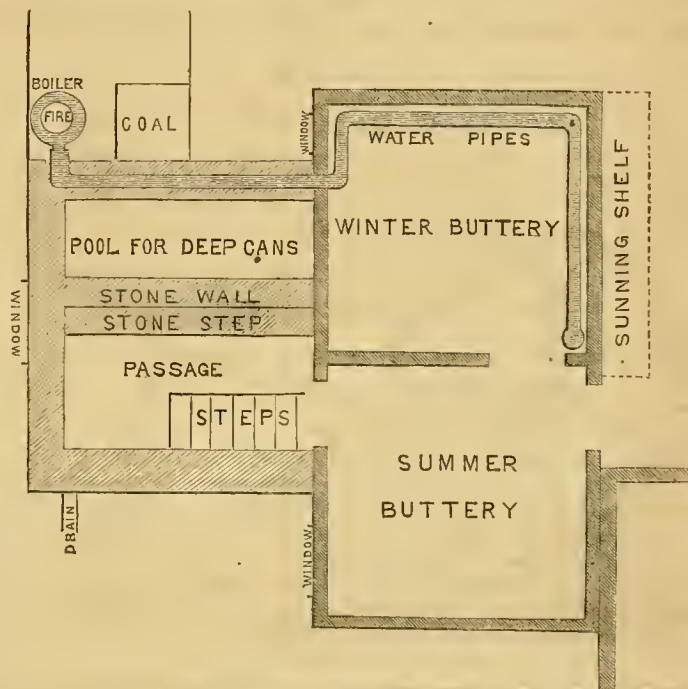


Fig. 1.—GROUND PLAN OF DAIRY.

the adoption of all who attempt to make good butter in the winter.

Abortion in Cows.—The New York Investigation.

The dairy regions of the State of New York have been more or less affected by abortion for many years. About ten years ago the disease had become so prevalent in some counties that

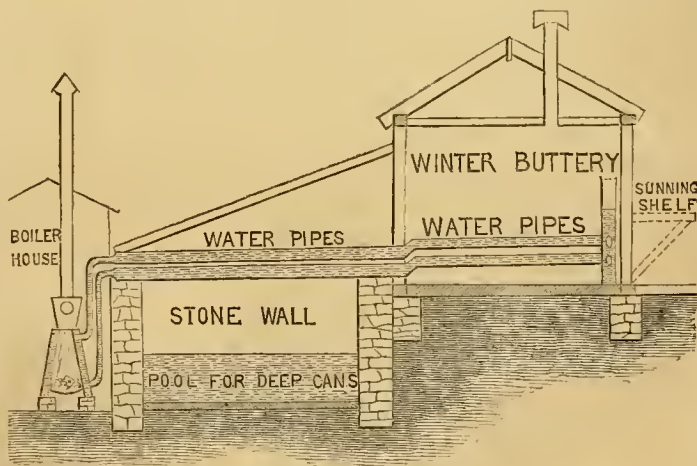


Fig. 2.—SECTION OF DAIRY.

the State Agricultural Society appointed Commissioners to investigate the subject, and made appropriations to secure a careful examination of all circumstances which could probably be instrumental in causing the trouble. The Commissioner for 1867 was Dr. John C. Dalton, and he was succeeded for 1868 and '69 by Dr. Wm.

H. Carnalt (who had been Dr. Dalton's assistant). The Society published three annual reports from these Commissioners—which may be briefly summed up as follows:

Over 1,000 replies were made to the circulars of inquiry sent out to farmers and others. There were also appointed six assistant inspectors, at salaries of \$100 per month beyond their expenses. They were directed to inquire especially into the condition in which dairy cows were kept as to cleanliness, temperature, humidity or dryness of stables, odors in stables, the manner of tying the cattle in their stalls, and the space allowed to each animal; also, into any noticeable circumstances which could influence the condition of pregnant cows. Both farmers and inspectors reported as to all manner of conditions, in minute detail. As a result, it was not proven that any set of conditions was more prevalent on farms where abortion was frequent than on those where it was unknown. In 1867 reports were made concerning farms in forty counties, on which there were kept 49,749 cows. Of these 2,574 had aborted—being about one in nineteen. In the ten counties where there had been the most abortion the proportion of cases was from five per cent to ten per cent of the whole number pregnant. It was not found that the disease was the most prevalent in large herds. The cases were equally numerous whether the cows were kept for butter, cheese, or milk. Among what were rated as "ordinary" milkers there was a shade more of abortion than among the "good" milkers, but not enough more to amount to an argument. There were about as many in proportion among heifers pregnant for the first time as among older cows. It was found that out of 1,180 cases 171 had occurred in the 5th month of pregnancy, 214 in the 6th, 288 in the 7th, 295 in the 8th, and 124 in the 9th. Out of 1,758 cases 164 had occurred in November, 343 in December, 385 in January, 405 in February, 274 in March, and 88 in April (the full period usually falling in or near this latter month). This shows a pretty steady increase after housing the stock, but it does not prove that housing is a cause of the disease. Cold and exposure seemed to have had little influence. Neither did the amount of shade and water in the pastures, nor the distance from the milking-yard to the pasture. The general conclusion was reached that no ordinary form of mismanagement has an influence in causing abortion. Impregnation at too early an age was not found to be a cause (but it was not determined how this may affect their future pregnancies), nor was the use of immature bulls, nor the use of the bull on too many cows. The disease is rarely fatal to the cow. Of those who had aborted before, about 22 per cent aborted the second year. The early removal of the calf did not seem to cause the cow to abort with her next calf.

The disease was usually very local, being confined to particular farms and not spreading to adjoining herds. *It exists nowhere as an epidemic.* Soil and situation seem to have nothing to do with its frequency. It is usually a purchased cow that brings it to a new farm, but not especially from a herd in which it has already appeared. Abortion was not found to be due to any inflammation of the womb, nor to any marked change in the reproductive organs. "It is probably not due to any defect in the original formation of the fetus."

In the examination of 1868 especial attention was given to the influence of *ergot*. Out of 75,000 cows, 4,350 of which aborted, *not one case* was traced to this cause. Neither did the

proportion of ground feed appear to have anything to do with the frequency of the cases. The disease was thought to be more likely to occur on a farm which had once been affected than on one where it had never appeared. It also appeared that it would be better to buy cows not in calf, as there was some indication that abortion is more frequent when the cows had been moved in a pregnant condition.

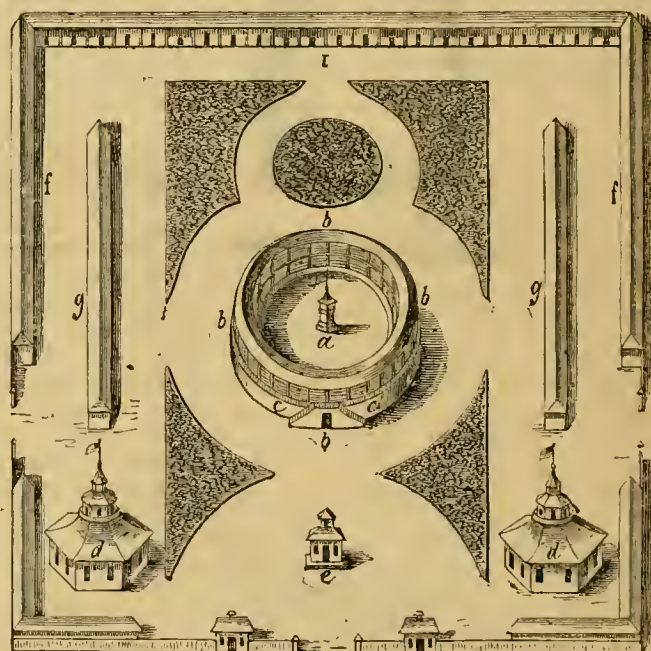
Dr. Carnalt thinks, and he believed there was evidence to sustain his opinion, "that an excessive drain upon the milking capacity of a pregnant cow is injurious to the healthful performance of the reproductive process."

In the examination of 1868 it was found that 71 per cent of the abortions occurred during the last three months of pregnancy; that cows which have had their first calves when under the age of three years are more likely to abort subsequently than those which were over three years old when they first calved, in the proportion of five to three; that cows which have been moved are more liable to abort than those kept on the farms on which they were raised, in the proportion of 74 to 4; that cows removed during pregnancy are more liable to abort, in the proportion of nine to two; and that excessive lactation during pregnancy is liable to arrest the development of the fetus, and thus cause abortion. In 1869 an examination was made of the condition of the dairy herds in Geauga Co., Ohio, as compared with those in Herkimer Co., N. Y.—both dairy counties. Geauga Co. is entirely free from the disease, and nearly every condition exists there which in Herkimer Co. accompanies its worst development. For instance, the farmers of Geauga buy 70 per cent of their cows. In general terms, it may be stated that the result of this whole investigation has been very slight indeed. It is made to appear that it is injurious to milk a cow (especially a large milker) too near to the time of her next calving; but even this is not proven, and even if it were it would be doubtful whether more *net* would not be gained than lost by milking at least seven months after impregnation. The reports are very valuable as showing in which direction future investigations should *not* lie.

Plan of a Fair Ground.

The Agricultural Fair is a valuable educational institution. Not only is it a means of instruction and a stimulant to the farmer's ambition to excel and consequent profitable exertion, but it is a valuable means of recreation in which his family can join with pleasure and profit. It should therefore be encouraged, and we are gratified to know that a lively interest is taken by our readers in these local fairs. We know this because numerous requests have come to us for aid and help in the shape of advice and instruction as to the laying out of fair grounds. Having for many years made a point of attending every agricultural fair held within our reach, and having consequently attended

them in many places, east and west and north and south, we have noted particularly the best and the worst features of a great many of them. The objectionable features we avoid, and the best we combine together in the plan here presented to our readers who are interested in either the improvement of some grounds already in existence or the construction of altogether new ones. The best arranged and the handsomest fair grounds we have visited, and we have seen more or less in almost every State of the Union, is decidedly that of St. Louis. Those who are familiar with those grounds will probably recognize some points in our plan common to them. The great ends to be attained are roominess, convenience both for stock and for the visitors as well as the exhibitors, attractiveness of appearance, and such an artistic arrangement of the buildings, grass plots, shrubbery, and trees as shall prevent the slightest appearance of desolation when the visitors are few, or the appearance of crowding when they are very numerous. For county fairs, "ten acres is enough." This gives room enough to accommodate 5,000 people comfortably, or 10,000 when crowded, which is as much or more than most counties can turn out on such an occasion. Of course, in that space we do



not include a trotting-course. We do not recommend it as an adjunct to the agricultural fair; it should be a distinct affair, and held on some other occasion, if held at all. A lot of ten acres, if square, as it should be, will give an eighth of a mile or 220 yards (40 rods) on each side. It should be as nearly level as possible. The center should be occupied by the showing for the exhibition of stock, in the middle of which would be the stand for the judges (a) raised off from the ring. Around the ring would be a covered building to seat the spectators (b, b), the seats rising from front to rear in regular tiers all around. Beneath these seats, and outside the circle, would be roomy spaces for refreshment and retiring rooms (c, c), and for the exhibition of various articles of machinery or implements. Surrounding this central building should be grass plots with shade trees and ornamental shrubbery. Outside of these again would be two buildings (d, d), one on each side from the entrance, for the exhibition of fruits and flowers,

and for articles of domestic manufacture, musical instruments, etc., etc., with dairy products if desired there. Opposite the main entrance would be the official head-quarters (e). Around the whole would be the stock sheds (f, f), and if needed two sheds (g, g) might be appropriated for poultry or for farm crops or garden vegetables. We would appropriate no room for fat giants, living skeletons, pigmies, or such stock; these, with all other side-shows ought to be accommodated with the whole outside. In one of the front buildings (d, d) an upper floor should be provided with seats, for the purpose of holding farmers' meetings during the fair, which might be found both useful and entertaining. The plan here given is on a scale of half an inch to 100 feet, and it admits of indefinite expansion according to need or as may be desirable. The whole of the buildings and improvements here described, with a ten-foot close board fence all around, would cost from \$5,000 to \$10,000, according to the style in which they should be erected. In newly-settled districts, where money is a scarce article, the expense might be reduced to \$2,500, and yet a presentable fair ground be got up, by building plain, temporary sheds instead of costly buildings.

Diseases of Sheep.

The sheep, which seems a special prey to disease and misfortune, is subject to attacks from various parasites. Probably the most injurious of these are those which infest the lungs and the liver. The first, called *Strongylus filaria*, is a thread-like worm from two to three inches in length, which is found in the bronchial tubes and stomach when in a completely developed state, and in the lungs and bowels when in its embryo condition. In this imperfect state it appears as small, hard, chalky nodules, which are imbedded on the surface of the lungs and the intestines. These nodules contain the eggs or the immature worms, which when fully developed find their way to the stomach and the bronchial tubes. Here they breed, and each female produces, as is estimated, 5,000 eggs or living worms, for it reproduces itself in both methods. The eggs are probably discharged from the sheep upon the herbage of the pasture, where in moist places they remain uninjured for a long period, and possess great tenacity of life. On being taken into the stomach with the food, they immediately pass into the circulation and complete their round of existence. The second parasite is known as the *Distoma hepaticum*, or Liver Fluke, and is a leech-shaped worm which infests the liver, the gall-bladder, and the biliary ducts. A case has been observed in which 840 of these parasites were taken from the gall-bladder of a sheep. Here these parasites increase, the minute eggs being discharged in the dung, and after passing through a complicated series of changes, in which it is supposed they become parasite to a molluscous animal, in which condition it and its bearer are swallowed by the sheep with the herbage to which the bearer becomes attached, and the round of existence is completed to commence once more.

These two parasites give rise to the most fatal disorders to which sheep are subject. The first (*Strongylus*) exists not only in the lungs and stomach, but has been found in the intestines. When the stomach and the intestines are infested it gives rise to fatal diarrhoea, more especially in lambs. When the lungs be-

come its abode it is the cause of the most distressing cough and bronchial derangement, which rapidly brings the suffering animal to an end. It is highly probable, however, that vast numbers of these parasites may exist in a sheep without their presence being suspected. A vigorous condition of health may enable the animal to resist their ill effects. But let the slightest departure from robust health occur and trouble follows. The sheep becomes rapidly thin, and the best feed and care avail nothing. The sufferer totters about, and at each exertion is thrown into violent paroxysms of coughing. The countenance exhibits the greatest distress, the nose is pinched up, the back is arched, and the feet are drawn together. Acute diarrhoea occurs, and often a ravenous appetite and thirst impel the animal to swallow both solid and liquid filth. After an uncertain lapse of time the animal dies, sometimes rigidly convulsed. On opening the body, the lungs and bowels will be found covered with the small knotted appearances before alluded to. The bronchial tubes, and probably the fourth stomach and the bowels, will be found infested with the worms, enveloped in frothy matter or mucus. The lungs will be found to be much diminished in size and weight, and of an unnaturally light red or creamy color in patches; and a quantity of light colored fluid or serum will often be found within the cavity of the chest. Such are the effects which we have observed in cases which have occurred in our own flock, and similar ones are described as having occurred in the experience of others. Dr. Noah Cressy, of Middletown, Ct., in his second annual report to the Board of Agriculture of that State, describes in a similar manner cases which have come under his notice.

The remedy for this disease is turpentine, which seems to operate most favorably. To our own sheep we have administered with good effect a teaspoonful of turpentine in a teacupful of water to lambs, and double this dose to a full-grown sheep, each morning for three or four days, no feed or water having been given during the previous nights. High and dry pastures, the best food during winter, as clover hay, linseed cake meal, ground rye, oats, and bran, and plenty of salt and sulphur constantly within reach, with complete avoidance of wet, low, undrained pastures, will act as a preventive. The parasites have undoubtedly been imported hither in English sheep, and it is very certain that they are now widely diffused in Canada, from whence they have been imported directly into our own flocks.

The second mentioned parasite, the Liver Fluke, accompanies the disease well known as the rot; as does the lung parasite just described, both being often found together in the same patient. In a case which recently came under our notice, and which we examined carefully, both parasites were found in great numbers. The symptoms by which the presence of the Liver Fluke may be known are as follows: The sheep becomes dull and inactive, remaining isolated from the rest of the flock; the sides begin to fall in, and emaciation commences; the skin becomes of a pale color, with yellow or black patches, and the wool easily parts from it, becoming very ragged and loose; the eyes lose their luster, and become white and pearly; the abdomen enlarges; the spine becomes bent upwards, stiff, and prominent; and, most notable of all, a loose baggy swelling appears under the chin, and the nostrils are drawn up, giving the sheep a most wo-begone appearance. This

is the last stage of the disorder, and if no relief is afforded the sheep dies very soon, eating almost to the last moment. On opening the sheep after death the liver will be found to have a mottled appearance, being covered with livid spots, and infested with Flukes; the belly and cavity of the chest will be found filled with a watery liquid.

The preventive treatment in this case is similar to that recommended for the previously described one. The remedy we have used very effectively in a recent case already referred to was as follows: Common salt, 5 ounces; saltpeter, powdered, 1/2 ounce; ground ginger, 160 grains; red oxide of iron, 80 grains. The above to be mixed with one quart of boiling water, and when it is nearly cool three ounces of spirits of turpentine are to be added. This mixture must be well shaken up when administered. The infected sheep should have no food during the night; on the next morning four table-spoonfuls should be given to a full-grown animal, and half as much to a lamb. No food should be given for three hours afterwards. This medicine should be repeated in four days, with the same precautions, for at least three times. The sick animals will require abundant care, the best feed, and a plenty of pure water. They should not drink from ponds or streams in low ground. Well-water will be found the safest drink.

From the large number of letters we have received from widely separated places describing symptoms which show conclusively that the sheep therein referred to are suffering from these parasitical diseases, we are assured that they have become widely distributed, and we have the best reason to know that native sheep are already affected. The parasites have then become naturalized with us, and if we would avoid the wide-spread fatality amongst the flocks which periodically occurs on account of them in England and Australia, it is absolutely necessary that we take measures to prevent their spread and to procure their destruction. To carefully avoid low, damp pastures; to burn over the grass in such places on which sheep have pastured, instead of cutting it for hay; to furnish constant supplies of salt, which is remarkably effective against them; to keep our flocks in robust health; to avoid over-heating by too close shelter in winter; and also to avoid permitting the sheep to remain upon an accumulated bed of fermenting manure at any time; and to watch for the first exhibition of the disease, the approach of which is remarkably insidious, and then to administer teaspoonful doses of turpentine daily—these will in a great measure, if not wholly, prevent trouble from these parasites, and aid in their eradication.

THE CATTLE SUPPLY.—Circumstances are evidently tending towards a large decrease of the Texan cattle production. The rapid settlement of Texan lands is greatly interfering with the range for stock, and we are credibly informed that in consequence of the lessened range and supply of grass the stock is falling off in produce and weight. The result must certainly be to reduce the competition which Texan cattle have hitherto held with our native and grade cattle, to the benefit of the latter. The cattle business must gradually grow into the hands of farmers instead of the ranchmen, and beef stock will become an all-important element of general farming in connection with grain growing. This will happily lead to the greater perfection of our agriculture.



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FIGHTING THE FIRE.—*Drawn and Engraved for the American Agriculturist.*

The engraving depicts a scene which is of frequent occurrence amongst those who live in the woods. That useful servant, but destructive master, fire, however, is not confined wholly to timbered countries, but devastates prairie districts just as severely and as frequently as it does wooded ones. The fires of the last two years in both western and eastern parts of the country have shown that one is as equally subject to the infliction as the other. Under present circumstances it is well to calculate on their annual occurrence, and be prepared accordingly. The volumes of sparks and glowing cinders shot forth from the smoke-stacks of the innumerable locomotives that now make their way across our country can not fail to set thousands of fires, and the most watchful care and effective means of preventing their spread are necessary to confine them within the least destructive limits. A small fire may be controlled, but an extensive one is beyond human power. The first effort should therefore be directed to forming fireguards. These in a wooded country should consist of broad cleared strips around each clearing and outside of the fences. This should be burnt off each spring, and a few furrows plowed on each side of it. If a fire should

occur, brands and sparks will fall within this strip, where they may be extinguished, as may also the gradual creeping of the fire upon the dry ground by earth scattered upon them. Earth is much more effective in extinguishing a running fire than water. The water dries up and the fire consumes it, but earth is incombustible, and by preventing access of air smothers out the fire. A prairie fireguard consists of double back furrows plowed around the homestead about twelve feet apart. If a dangerous fire is approaching, the strip between two of these furrows should be burned off. No common fire will pass this guard, but if the approaching fire is accompanied by a strong wind it would be well to burn over two of them, as well as to make a back fire to meet the one approaching. In burning over the guards it is best to use precautions against the escape of the fire from the proper limits. These guards should be prepared before the dry season has advanced, and the security against the danger would be greatly strengthened. A few shovelfuls of earth thrown upon a newly-started fire will immediately quench it. When buildings are threatened, the best plan is to hang blankets and quilts over the roofs and gables, and, placing a

ladder up to the peaks of the roof, pass water along it and keep the blankets saturated. The water running off at the eaves will protect the walls, and will keep the fire from creeping very close up to them. Above all things, neighbors should act in concert. By gathering at exposed points and working together, a fire may often be overcome and a whole settlement be saved. A line should be formed of men armed with shovels, who should throw the earth in regular belts, and retreat as the fire advances; each belt of scattered earth will gradually reduce the fire, until finally it may be beaten out with the backs of the shovels. Remembering the great danger in which farmers are constantly placed from autumn fires, and the facility with which the railroads originate and spread them, it would not be amiss at this time to add this as a count in the gathering indictment against these corporations, and take means to compel them to clear up the limits of their tracks, and to confine the fires they create within these limits, or to make them responsible for the damage occurring. Properly guarded smoke-stacks to the locomotives will prevent much of the damage from railroads, and cleared or plowed strips on each side of the road will also help.

The Cockspur Thorn.

Englishmen who settle in this country naturally wish to have Hawthorn hedges, and those of our countrymen who have seen the "quick" hedges abroad, or have read of their beauty, be-

half inches long. There are several native forms that have received names as species from the earlier botanists, and a number of garden varieties have been produced in Europe, some of which are only about two feet high. While we do not advise the use of this or any other

the family the *Orobanchaceæ*. One of our commonest representatives of this family is the One-flowered Cancer-root, shown at the right-hand of the engraving. These plants are too weird in their appearance not to have attracted the notice of quacks, and more than one of them



COCKSPUR THORN (*Crataegus Crus-galli*.)

come unimpressed with the idea that the Hawthorn is the proper hedge plant. When these enthusiasts try the Hawthorn hedge they are sadly disappointed. It puts out its leaves late and drops them early; under our hot suns the leaves soon get a burnt and rusty appearance; and, worst of all, they find the hedge attacked by all the insects that infest the apple, pear, and related trees. In our climate the Hawthorn—so identified with English rural scenery, and so interwoven through English literature—is practically useless. We are far from commending any thorn as a hedge plant, but there is no one of the large genus so well adapted to the use as the Cockspur Thorn. This is an indigenous shrub or small tree, found from Canada to the Gulf, and extending west of the Mississippi. As ordinarily met with, it is a shrub, but under favorable conditions it forms a handsome round-headed tree fifteen or twenty feet high. It is distinguished from other species by the exceeding neatness of its habit. The leaves are obovate—broadest towards the extremity—varying considerably in shape, serrate on the edges except near the base, very thick, bright and shining above, and conspicuously veined below. The flowers are in clusters of from two to six in a simple corymb, and are larger than in most of our native species. They are succeeded by a small bright red fruit. The thorns of this species are slender, and from two to two and a

thorn as a hedge plant, we can commend it as an ornamental shrub or tree, and it bears clipping as well as the other species. As is the case with other native and foreign thorns, the seeds of this do not germinate until the second year.

The Broom-rapes.

Those who go through the woods with their eyes open must have met with one or more members of the Broom-rape Family. They all have a singular uncanny look, being entirely destitute of proper leaves, but bearing colored scales in place of them. These plants have no need of foliage. The office of leaves is to elaborate the crude sap and prepare it for use in the growth of the plant. The Broom-rapes do this by proxy—in other words, they steal the prepared sap from other plants, and have nothing else to do but grow and enjoy themselves at the expense of others. They belong to the class of root parasites, and a careful examination will show that they are attached by the root to some other plant. The common representative of this family in England is found as a parasite upon the Broom; and, having a thick fleshy stem somewhat like a turnip, or *rapa*, the name is thus derived, and is applied to a family consisting of several genera. The typical genus is the European *Orobanche*, hence botanists call



BROOM-RAPE—CANCER-ROOTS.

has been extolled among the thousand remedies for cancer; hence we have the common name Cancer-root applied to at least three of our species. The most that can be said of them in this respect is that they have considerable astringency, and may have been found useful in healing those ulcers that are cancers in the eyes of the quack cancer-doctors. It is one of the many evils following in the train of quackery that many of our pretty and innocent plants are obliged, as in this instance, to bear a repulsive common name. Nothing is more needed than a revision of the English names of our native plants. Our little Cancer-root bears the botanical name of *Aphyllon uniflorum*; the generic name indicates that the plant is without foliage, and the specific one that it is one-flowered. It is found in woods throughout the United States. Its slender one-flowered stalks are four or five inches high and, with the flowers, are brownish or yellowish. The other plant in the engraving is *Conopholis Americana*. The generic name is from two Greek words meaning *cone* and *scale*. It also bears the unsavory name of Cancer-root, and another scarcely less unpleasant—Squaw-root. This has an equally wide range with the other, and is frequently found, especially in oak woods, thrusting its stems up from among the fallen leaves. The stems grow in clusters some four or six inches high, even taller when old, and as thick as one's thumb. The stem is completely

covered with scales, which give a cone-like appearance to the plant, and suggest the botanical name. The upper scales bear flowers in their axils. The plant when young is usually yellowish, but later in the season it becomes brownish. In autumn, another related plant, the Beech-drops, may be found abundant in beech woods. In England there are several representatives of this family, some of which injure lucern, clover, and other crops.

Summer Propagation.

The nurserymen propagate large stocks of certain shrubs in summer, and it offers to the amateur an easy method of multiplying his shrubs. There are many enthusiastic growers of plants who never try to propagate them, as they think that for this there is required some art or knowledge beyond their reach. It is true there are some "hard subjects" that tax the ingenuity of the most experienced gardener, while, on the other hand, there is a large class of plants that may be multiplied with the greatest ease. For summer propagation we need a moist atmosphere and shade; these can be best secured by means of an ordinary hot-bed or cold-frame, the glass being coated with common whitewash or whitening and skimmed milk. If this does not furnish shade enough, a straw mat or some evergreen boughs may be laid over during the hottest part of the day. In the absence of sash, a lath frame covered with cotton cloth will answer a good purpose, and we have used common grocers' boxes, without top or bottom, with a cloth tacked over, with good results. The soil of the bed should be very poor and sandy, or pure sand may be used. In such a bed as this cuttings of the just ripening shoots of most of our ornamental shrubs will root readily. Weigelas, Deutzias, Hydrangeas, Roses, and a great many other things can be multiplied with but little trouble. Cuttings of the just hardening wood of three or four joints are put into the sand, which is to be pressed firmly about them. The sand is kept moist by proper watering, and air given when the sun is very hot. As soon as the cuttings strike root they are to be removed to good soil, where they can be shaded until they become well established. A bed of this kind will be found very useful for striking cuttings of such plants as are to be kept in the house over winter. Vigorous young plants of Geraniums, Verbenas, Cuphea (Cigar-plant), etc., will generally give much greater satisfaction than old plants that are potted after having been in the open border all summer. Those who have never tried it will be surprised to find how many nice plants for themselves, or to give away to their friends, will come out of a propagating bed like this.

Retinispora Pisifera Aurea

Don't be startled at the name, as it belongs to one of the most charming shrubs or trees in existence, and we fear that just on account of its name alone it will for a long time remain confined to the collections of the few, instead of being, as it should be, as well known and as popular as the Box or Arbor-Vitæ. *Retinispora* is a genus of Japanese Evergreens related to the Cypress. The name means *resin* and *seed*, as the seeds have a coating of resin. If we were to give a free translation of the name by which the tree is known in the catalogues and the one

given at the head of this article, it would be "The Golden Pea-bearing, Resin-seeded Japanese Cypress," which in the way of length, at least, would be no improvement on the nurserymen's name. We know of no objections to calling the *Retinispora* the Japanese Cypress, or perhaps the native Japanese name, *Hinoka*, might do, and the "Golden Hinoka" would not be a bad name under which to popularize a most valuable tree. But enough of names—save that we every day wish that there was some way in which a uniformity of common names could be secured. A few years ago we called attention to this *Retinispora*, but ours went with all its beautiful companions in the disastrous winter of 1871-72. With the freakiness that everywhere characterized the injury to evergreens, this variety remained perfectly hardy in the vicinity of Boston, and we recently saw some fine effects produced by it in the grounds of Mr. H. H. Hunnewell at Wellesley, and Prof. C. S. Sargent at Brookline. The Golden *Retinispora* is probably never a very large tree, the tallest we have seen being not more than five or six feet high. Its foliage is exceedingly fine and feathery, and its color a very lively yellow. Some green is intermixed with the yellow, but all the newer growth well merits the name "golden." It has several advantages over most yellow-leaved evergreens, not the least of which is that it holds its color in the coldest weather, and is as bright and cheery in mid-winter as at any other time. Many variegated evergreens are at their best for only a short time, and as soon as their new growth acquires age they become dull. We have before advocated the use of evergreens of various shades for the formation of beds for winter ornament. In the latitude of New York at least, take it for several years in succession, the ground is bare for much more time than it is covered, and beds of low evergreens of well contrasted colors can be made to produce pleasant effects. Plants may be kept in pots in a reserve ground to be plunged in the beds from which the frost has cleared away the Coleuses and such bright-leaved plants. For this purpose this *Retinispora* will answer admirably. It is very easy of propagation, rooting readily from cuttings, and it is exceedingly manageable, and can be kept as dwarf as one chooses. We hope that our good word for the "Golden Hinoka" will induce our nurserymen to commend it to the public as its merits deserve.

Notes from the Pines.

This is, so to speak, discouraging. I write the first week in July, and we have not had since some now unforgotten date in May rain enough to wet the soil more than an inch down. After several years of accumulation I expected that this year would bring me fine results in the way of flowers and fruit. But what the winter did not kill the drouth has baked. No matter what rains may come hereafter, the majority of things are burned, dwarfed, and stunted beyond remedy. Rose-buds baked hard before they could open, and strawberries cooked upon the vines. Yet in Georgia, our friend Berckmans writes, they have had an excess of rain, so much as to cause the ripening peaches to decay.

GRAFTING must have fared badly this spring. In teaching Master Eddie to graft, I boastfully remarked that I never had a graft fail. He can now retort that as large a proportion of his succeeded as there did of mine. After the buds had started many of them dried off.

SUCCULENTS, at all events, like this weather; and when I am disheartened I can turn to my borders and rock-bed of Sedums, *Sempervivums*, and Cactuses and take comfort. When Sedums and *Sempervivums*—Live-forevers and House-leeks—become better known I fancy they will be very popular. The Sedums present a great variety, from the tall *Maximum* to the dwarf and moss-like *Corsicum*, and in a large collection there will be some in flower from early spring until frost comes. The *Sempervivums* do not flower so freely, but their rosettes of leaves are so pleasing that I prefer that they should not flower. Nothing can be more interesting than the cobwebby species, such as *Sedum arachnoidum*, *S. tomentosum*, and *S. Lageri*, all of which form handsome, dense rosettes of leaves; and these are connected by a growth of minute hairs that looks like a dense cobweb. Both Sedums and *Sempervivums* will grow in poor soil, endure any amount of drouth, and while the flowers of all are pleasing, some are decidedly showy, and many of them have a delightful fragrance. While the flower-garden has been almost ruined by heat and dryness the

VEGETABLE GARDEN has fared but little better. Peas that were sown early have milled just as late-sown ones are apt to do, and those that should have grown three feet high stopped at half that distance. This dry spell is very injurious to biennial roots that were sown early. The drouth has given the plants a rest something equal to that which they get in winter. When wet weather comes they will make their second growth, and many will throw up flower-stalks. I notice that even the slight rains that have fallen recently have made salsify, scorzonera, and scolyms push their flower-buds. To get useful roots these must be removed as soon as they appear. It is the case with me, and I suppose with many others, that a large share of the June sowings have failed, and the crops that we depend upon to supply the table through the late summer and autumn months are mainly missing. It becomes an important matter to consider

WHAT CAN WE SOW IN AUGUST to make up this deficiency? It is often the case that the season has its compensations, and when untoward at one end it is unusually favorable at the other. So, if one is willing to risk the seeds and labor, he may, by sowing out of season, stand a chance of getting a satisfactory crop. Bush-beans are quite safe for a late crop, and some of the earliest peas may be tried. Kohl rabi will in a favorable season get to an eatable size before frost. Spinach will come on rapidly, and may be sown for fall use, but it is too early to put in the winter crop. Ruta-bagas may be sown early, and the flat turnips late in the month. Then those who care to do so can begin the round of radishes, cress, lettuce, etc.

PATIENCE WITH SEEDS is something the amateur has need to practice. While some seed will come up in a week, more or less, others like to take their time about it. I keep a frame for fall-sown and another for spring-sown seeds. These are simply cold frames, and the seeds are sown in shallow boxes. I sow herbaceous perennials, such as Columbinas, Pentstemons, Dodecatheons, and the like soon after they are gathered. Plants appear in a few weeks, and by cold weather they are strong enough to sustain themselves through the winter by the aid of a covering of leaves. When winter has fairly set in the frame is filled up with leaves, and the sash put on to keep out an excess of rain. During warm spells in winter the sash is raised

to prevent a too high temperature. In spring these plants are found in good condition, and are pricked out. The boxes are then put back in the frame, and in most cases there comes another crop of young plants from seeds that failed to germinate the autumn before. So in the frame in which seeds are sown in spring I find it well to be patient. I find that several boxes sown in March, and from which those seedlings that came quickly have been removed, show now in July several rows just breaking ground. One of the great troubles of those who fail in raising trees and shrubs from seeds is the inability to wait. For all seed-sowing in the small way too much can not be said in favor of

SHALLOW SEED-BOXES, which have been frequently mentioned in these columns. A common soap-box will make three, as the soil need not be over two or three inches deep. Seeds that are long in germinating can get in these what they will rarely receive in the open ground—thorough weeding. If tender seedlings come, and find the soil already occupied by vigorous weeds, they have not the heart to enter into the "struggle for existence," and quietly disappear, while the seedsman is blamed for selling poor stock.

The Rhododendron Show.

Though the great show of Rhododendrons held in Boston in June is now a thing of the past, it is well to place it on record as a most important horticultural event. It was noticeable in the first place as it allowed people to see of what the Rhododendron is capable, as the plants were shown in large and small masses of shrubs varying in height from one to six feet; and besides these, single specimens, perfectly trained, showed what could be done with only one shrub. Secondly, it gave us an idea of what a flower-show should be. The large area inclosed by a monster tent was laid out in beds and borders of various forms, neatly edged with turf, and in these the plants were set in groups or as single specimens. The superiority of this method over the usual one of showing plants is so great that it should be adopted wherever practicable. Thirdly, it showed what a liberal and public-spirited man can do when he sets about it. Although the show was held under the auspices of the Massachusetts Horticultural Society, the public are indebted to Mr. H. H. Hunnewell, of Wellesley, who conceived the idea, assumed the expense, and furnished the plants. Mr. Hunnewell was ably seconded by Prof. Chas. S. Sargent, of the Bussey Institute, who did a great amount of hard work. These two gentlemen, especially, are deserving the thanks of the community for the finest floral display ever seen in this country. This exhibition can not fail to give a new impetus to Rhododendron culture, and to make thousands of people acquainted with these most valuable shrubs. While the finest specimen plants exhibited at the show were of kinds not quite hardy at the North, still so many of them are perfectly hardy that one can get a satisfactory variety of colors from among those that have shown themselves capable of enduring our severest winters. The climate and the vicinity of Boston is much more severe than that of New York, and plants that will winter there with safety will probably be hardy with the great majority of our readers. At our request, Prof. Sargent has indicated six varieties of Rhododendrons, giving the greatest variety of color, that have stood the severest of New England

winters. These are: *Album elegans*, *Album grandiflorum*, *Delicatissimum*, *Everstiaum*, *Purpureum elegans*, and *Roseum elegans*.

Blackberry and Raspberry Rust.

Whether it is due to the unusually early drouth or not, rust upon the species of *Rubus* appears to be unusually abundant this season. Some of the Western horticultural societies are discussing the matter in a tone that shows it to be so serious as to threaten the destruction of the blackberry. In some of these discussions the trouble is spoken of as rust, and the speakers are evidently in the dark as to its nature, and seem to look upon it as something that has recently come upon the crop. They seem to find it confined to the blackberry, and ask if the raspberry is ever attacked. This rust is no novelty. It makes its appearance upon the underside of the leaves as small, oval, orange-colored spots, which at length become so numerous that they run together, lose their identity, and form a shapeless mass of orange color that often covers the whole lower surface of the leaf. This rust is a regular plant, of the immense order of fungi, that lives in and upon the tissues of the leaf, and usually destroys it. When abundant, it so exhausts the plant that the wood fails to ripen. It occurs upon both the blackberry and raspberry, whether wild or cultivated. It does not seem to spread very rapidly, as upon a neighbor's place there is a patch of wild blackberry bushes, the leaves of which have been badly infested with it for several years in succession; these bushes are but a few rods distant from our own cultivated ones, upon which no sign of the rust has yet appeared. Had we control of these wild bushes we should cut and burn them, as they are unsafe neighbors. The remedies we have seen proposed are salt and lime, cultivators claiming that they have arrested the rust by the use of either of these. Should it appear upon our own vines, we should apply sulphur with a bellows, just as we do for grape mildew. Any remedy, to be effective, should be applied at the very first appearance of the rust, as when it has gained such a foothold as to exhaust the plant the best way is to cut and burn.

Seedling Strawberries.

There have been more new seedlings brought forward this season than for the past two or three years. The raising of seedlings is a very easy matter, and we hope that cultivators and amateurs will persevere in the work until they produce a fruit that has all the good qualities of the Wilson, with none of its bad ones. The Wilson is red long before it is ripe, and the fruit as found in the market, though fine-looking, is sour and hard. It may be doubted if we shall ever find a strawberry firm enough to carry a long distance after it is fully ripe, unless it be some juiceless variety like the Lady-finger. Among those presented to our notice this spring is a berry raised by Mr. Springstead, of Westchester Co., N. Y., a berry of excellent flavor; but as the specimens we saw were grown under glass we can say but little about it.

Mr. Geo. H. Hite, Morrisania, N. Y., has raised a very promising seedling. The berries are very large, rather rough surface, and from the clusters brought us appear to be very productive. Mr. Hite is a skilled horticulturist, and knows the requirements of a good berry.

W. Somers, of East Bridgeport, Ct., has also a seedling. It apparently has some of the Peabody blood in it, as it has the long smooth neck characteristic of the *Agriculturist* and other crosses of the Peabody.

Mr. E. W. Durand, of Irvington, N. J., is an amateur who has been remarkably successful with seedlings. His *Black Defiance*, *Late Prolific*, and others have taken place with our standard sorts. This year he shows another, which he calls the "Star of 1873." It is a very large and showy variety, and has the richness of flavor that characterize his other seedlings.

"The Duchess" is another new variety, a basket of which was sent us by Dr. F. M. Hexamer, of Newcastle, Duchess Co., N. Y. He writes us that it is three days earlier than Downer's *Prolific*, which will make it our earliest variety. It is much sweeter and better flavored than the Downer, and is, like that, a round, very bright, light scarlet berry. It has, as we are informed by the Doctor and others, superior carrying qualities, and it promises well as a market variety. The Duchess was raised by Mr. D. H. Barnes, of Poughkeepsie, N. Y., who also raised Barnes's Mammoth.

Several others have sent us seedlings, but in too poor condition for us to mention them.

The American Pomological Society.

The coming meeting of the American Pomological Society, which commences on September 10th, will celebrate the 25th anniversary of its existence. That we consider this meeting of more than usual importance is shown by the prominence we give to this notice. We have freely expressed our dissatisfaction with the conduct of its secretary, but the misdeeds of one who is unfortunately in a position where he can do mischief does not abate our interest in the cause. The Pomological Society is the only one in the world that brings together cultivators from such widely separated localities for a biennial comparison of experiences. It embodies the best pomological knowledge of all parts of the country, and its aims being national it should have the countenance and support of every grower of fruit from every section of the country. The terms of membership are low, and the fee is quite offset by the value of the report which each member receives. We hope that those from a distance will make a special effort to attend this meeting, as they will derive new inspiration from the gathering at a place where horticulture has, so to speak, taken a deeper root than anywhere else in the country. It is not that there are here and there eminent fruit-growers and cultivators in other branches of horticulture, but there is a horticultural atmosphere in Boston. The people sympathize with and believe in pomology and its related branches, and manifest this feeling by their active support. Where else will be found such an expression of this feeling as that magnificent temple to Pomona and Flora, the Horticultural Hall, presents? It will encourage those who are working at a distance and in isolated localities to go to Boston and see how a community may in time be educated to appreciate pomological labors, and to see what a welcome these "granite and ice" men can give to all fellow-workers from every quarter. It is hoped that every state, territory, and province will be represented by fruit-growers, who will come prepared to contribute each his mite to the great national catalogue. Through the liberality

of the Massachusetts Society for Promoting Agriculture, and six liberal gentlemen, the sum of \$1,100 is placed at the disposal of the Society to be distributed in premiums. The Society's silver medal and fifty dollars is offered for the first premium, and the Society's bronze medal and twenty-five dollars as the second premium in the various classes—viz.: Largest and best collection of apples by any state or society, three of each variety. The same for the largest and best collection grown by one individual. The same premiums—first and second—are offered for pears, native grapes, peaches, and plums. Special premiums are offered for grapes grown west of the Rocky Mountains, and the silver medal is offered for seedling apples, pears, plums, grapes, peaches, as well as for collections of figs, oranges, lemons, raisins, dried fruits, and canned fruits. Those sending packages of fruit will direct them to the care of E. W. Buswell, Horticultural Hall, Boston, to whom application may be made for premium lists and programmes. A number of well known fruit-growers have promised to prepare essays for this meeting. We venture to express the hope that they will be read only by title. It is a great waste of valuable time to read essays which will be much better enjoyed and appreciated when printed in the report of the meeting.

The Globe-flowers.

The Globe-flowers belong to the genus *Trollius*.



Fig. 1.—BUTTON-HOLE BOUQUET.

lius, a name supposed to be derived from the German word for globe; so both the botanical

and the common name are derived from the globular form of the flowers of some of the species. A Globe-flower at first sight appears



AMERICAN.

GLOBE-FLOWERS.

EUROPEAN.

much like a magnified Buttercup. It is related to the Buttercup, but there are marked differences. That has a regular green calyx and colored petals, while in the Globe-flower what appears to be the corolla is only a brightly colored calyx, and if we look for petals we shall find them within, so small and narrow that they are hardly to be distinguished from the stamens. The European Globe-flower (*Trollius Europæus*) is not a rare plant in our gardens; it is the one shown at the right-hand of the engraving. It blooms in May, and we keep a clump of it in the garden for its cheery appearance, as it comes at a season when yellow flowers are more welcome than they are in the hot days of August. It is a native of both Britain and the Continent, and is perfectly hardy, requiring no other care than to divide the clump when it gets too large. The Asiatic Globe-flower (*T. Asiaticus*) is also in cultivation, and has orange-yellow flowers. We have also a native species, *Trollius laxus* (*T. Americanus* of European books and catalogues), to which the name Globe-flower is inappropriate, as it is no more globular than a Buttercup. It is the smaller plant in the engraving. We find it quite abundant in a swamp about ten miles from New York, but as a plant to cultivate it has but little interest.

Button-hole Bouquets.

A button-hole bouquet seems like a small matter in itself. The custom of wearing a *boutonniere* is very general in England and France, and is becoming common with us, and the making and selling of these insignificant

bouquets, which bring 10c. to 25c., according to the season, forms an important item in commercial horticulture. It is necessary that the

flowers of which a button-hole bouquet is composed should be neat and pleasing, and be capable of retaining their freshness for several hours. We sometimes see in foreign journals lists of plants suitable for the purpose, and designs for making them up. The bouquets sold at the New York flower stores and by the flower girls are made up of such material as happens to be in season, there being no prevailing fashion other than to have violets when in season, and rose-buds at other times. In Boston, the bouquet is generally made of a rose-bud and a bit of *Myrsiphyllum*, or "Smilax" as it is there called. There can be no better green for the purpose than this "Smilax" vine, it being bright in color, delicate in outline, and will last a whole day without withering. Boston is celebrated for the excellence of its rose-buds, and with a Boston rose-bud and a bit of the "Boston-vine," as some New York florists call the *Myrsiphyllum*, a most perfect button-hole bouquet is made. In figure 1 we give a bouquet made of these alone, and in figure 2 one made of the same with two small sprays of *Aspilbe Japonica* added. The

Boston flower dealers make up these little bouquets by wrapping the stems with a small bit of tin-foil; they keep a paper of pins at hand, and when one buys a bouquet they put it in the button-hole and secure it for him—an attention we have not noticed in other cities. Later in the season, a Tuberose flower with a bit



Fig. 2.—BUTTON-HOLE BOUQUET.

of green is the prevailing style. Whatever the green, it should be one that does not wilt readily.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Table Decoration.

Within a few years great advance has been made in the art of table decoration, and the horticultural societies abroad offer prizes for the best specimens of this department of the florist's art. Stands

for the searching, and they can be largely used in such work. The leaves of carrots, parsley, and the common yarrow are not to be rejected. The young growth of grape and hop vines, with the spray of asparagus, will, under a skillful hand, work into pleasing forms, and the common green-brier may be turned to good account. The green groundwork being secured, then flowers may be sparingly worked in. If no flowering vines are at hand, those that do not bear flowers may be made to do so by binding to them carnations and other flowers that hold well without water by means of

milk I prefer to use water without any shortening. Half-a-dozen potatoes, boiled and mashed fine and mixed with the bread sponge, help to make the bread moist and tender. Another way much liked by some is to make corn meal gruel—about a quart, let us say, for four loaves—and scald a portion of the sifted flour with this; then make the batter cooler with cold water, and add flour until the sponge is thick enough, then the yeast. The addition of corn meal is much relished by some, and there is no better way to introduce it into the bread.

I used sometimes to buy in the city baker's "home-made bread," which seemed to be just "baker's bread" improved by the addition of corn-meal.

A WORD FARTHER ABOUT GRAHAM, GEMS, ETC.—

When people use Graham flour only occasionally, using white flour almost entirely, it is better not to sift the Graham flour. All of the bran is probably needed. It is a dear way to buy bran, too—to buy Graham flour at the usual prices, and sift out the bran to throw away or to feed the horses.

"Of what use is your Graham flour if you take out the bran?" some one asks. But you can not take out near all of the bran—at least, not with an ordinary sieve. This morning I made some Graham gems for breakfast. The flour professed to be made of

"the best winter wheat." The children have "begged off" so about Graham gems lately (and I have shared the feeling in less degree) that I seldom make them without either using half white flour or sifting out the coarse bran. This time I sifted the flour for a dozen gems. There was almost a pint of coarse bran, and about half of those bran particles were large enough to cover any printed capital letter in this paragraph. Whatever the diseased stomachs or inert bowels of sedentary men and women may need in the way of "waste matter," I can not believe that little children and people in average health and actively employed need to be kept upon any such amount of waste matter. So far as I have observed, children who can have their choice never choose unsifted Graham flour bread when they can get "white bread."

The theory about the wheat kernel—how it contains all the elements of the human body in the same proportion—seems all right, and I believe that no better article of diet can be found than whole wheat; but science must wait a little for the manufacturers, I think. We will digest this excellent theory, and get ready for its full practice by the time that machinery gets ready to give us the wheat kernel ground so as to make smooth flour. In a few mills already the bran is thoroughly cut up and made to disappear, I am told.

It is said that some people starve themselves on fine flour, and I dare say it is true. Fine wheat flour is almost devoid of some very important elements of nutrition. But these elements are found in other articles of diet. Good meat and milk are especially needed where fine wheat flour is the only "bread-stuff." Where there is plenty of good beef and mutton, and plenty of milk for the children, there need be no conscientious scruples against the free use of fine flour, it seems to me. Those who can not afford fresh meat and milk can not afford to confine themselves to white bread. Many a poor working woman keeps herself thin and weak by a diet consisting mainly of fine flour bread and tea. Many children are retarded in their growth and healthful development by too close confinement to potatoes and bread when they are too young to masticate meat and have not enough milk. In such cases there would be a great gain in the use of Graham flour, even if the coarser part



PRIZE DESIGN FOR TABLE DECORATION AT THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

usually of glass are made for the purpose of holding flowers for the table, and where living plants are used the pot is placed beneath the surface of the table. The regular leaves of an extension table are replaced by common boards cut so as to allow the stem of the plant to pass through, while the pot stands upon a stool or something provided for the purpose. Several table-cloths are used, and lapped around the stems of the plants that come through the table. We give an illustration from the Garden of one of these prize decorations to show to what refinement the art is carried, and to be suggestive to those who would like to undertake something of the kind. For the family table a simpler decoration is more appropriate. A few flowers put loosely into a glass are in much better taste than a large, heavy, crowded bouquet. In any decoration, whether for a private or a public table, heaviness should be avoided, and lightness and grace characterize every design, whether large or small. The matter of home decoration is easily managed, and may be dismissed by saying—the simpler the better. It often happens that parties, festivals, and other social gatherings take place during the season of flowers, at which refreshments are served. Those having charge of the table arrangements naturally desire to decorate with flowers, and usually make the mistake of having these in great quantity without bestowing any care upon the arrangement. A crowded bouquet in any place is less pleasing than a loose and graceful one, and this is especially the case in table decorations. Where persons are to be seated at the table it is especially important that the decorations should not be so heavy as to obstruct the view from one side to the other. Light, feathery foliage and delicate vines should form the chief material of all table decoration, and flowers may come in for color, but not, as is too often the case, to make up the mass. One with a little ingenuity and skill can make up tasteful decorations from very ordinary materials. If elevated stands like those shown in the engraving are wanted, and glass ones can not be procured, let the tinman make the portions to hold the flowers (to be filled with wet moss), and support them on glass rods. Even wooden supports may be used if quite clothed with vines. In the country an abundance of ferns may be had

a very fine iron wire. By the exercise of a little ingenuity a table for a summer festival can be made beautiful by the use of common and inexpensive materials.

Home Topics.

BY FAITH ROCHESTER.

GOOD YEAST AND SWEET BREAD.—You can not make good bread with poor yeast. To have good yeast in hot weather, it must be made new very often, and it must be kept very cool after it is made. A good bread-maker of my acquaintance keeps the yeast-cakes, that one can buy in packages at any grocery, in her house just for making fresh yeast every time. Those yeast-cakes are sweet, but are hardly lively enough generally to use directly in the bread-making. They serve well for making yeast—one cake for about three pints of yeast, which is enough for most families to make each time. Baker's yeast is often sour, though lively. No one can make sweet bread with sour yeast, unless sugar is added. No; soda never sweetens anything. Alkalies neutralize acids, but they can only do that. They never make sour things sweet. If your bread has turned sour from too long standing, you can do away with that sourness by a judicious use of alkali; but the sugar that was once naturally in the dough had all departed before the bread was really sour. If I am so unfortunate as to have to use soda in my bread, I put in a table-spoonful of sugar with it when I go to knead it.

These columns have readers who shake their heads at the very mention of yeast bread. They think it is poison; but it will be a long time, I think, before they produce in our minds any very strong abhorrence of light, tender, sweet yeast bread, such as one in a thousand among bread-makers knows how to produce. Fortunate are the housekeepers who have plenty of sweet unskimmed milk to use for mixing bread. Skimmed milk will not answer the purpose. It is little (if at all) better than water. New milk, with its unrisen cream, shortens the loaf. No regular "shortening"—lard, butter, or even cream—can do the work equally well. When I can not afford to use new

were removed by sifting. The canaille (shorts or middlings) which is taken from the wheat at the mill makes excellent food cooked in various ways, as biscuit or as mush. It works in well with other kinds of flour—in johnny-cakes, gems, rolls, and crackers.

SOUR MILK AS FOOD.—How powerfully the imagination affects the appetite! Having always seen the beautiful white lopped milk given to the pigs as unfit for human food (unless first made into Dutch cheese), I have not been able to bring myself to taste it fairly. The very idea that milk was sour put its relish beyond question. But my children, who had plenty of excellent sweet milk for food, seeing sour curdled milk eaten gladly by a guest, ate the same without hesitation, and have ever since preferred it to sweet milk—that is, when they can have it in unbroken curd. Just so with their father. They all relish it without any seasonings.

Marion Harland gives a recipe which is well worth trying. Here it is:

"BONNY-CLABBER OR LOPPERED MILK."—Set a china or glass dish of skimmed milk away in a warm place, covered. When it turns—i. e., becomes a smooth, firm, but not tough cake, like blanch-mange—serve in the same dish. Cut out carefully with a large spoon, and put in saucers with cream, powdered sugar, and nutmeg to taste. It is better if set on the ice for an hour before it is brought to the table. Do not let it stand until the whey separates from the curd.

"Few people know how delicious this healthful and simple dessert can be made, if eaten before it becomes tough and tart with a liberal allowance of cream and sugar. There are not many jellies and creams superior to it."

Speaking of Dutch cheese, I may as well tell how to make it, as many families where it might be had and relished are deprived of it through the ignorance of the housekeeper.

COTTAGE CHEESE.—Heat sour milk with a gentle heat (it is a good way to set the pan over a kettle of warm but not boiling water) until the whey separates from the curd. Pour on the whey with care, put the curd into a bag, and hang it to drip for several hours. Do not squeeze it. Work it with a spoon or with clean hands until it is soft and even, salt it, add a little cream or butter, mold into round balls, or leave it to be served in small saucers. It should be eaten while fresh.

PARENTS' UNIONS.—Not long ago I read a letter which Miss Peabody gave to the public. She hoped that the press generally would make some mention of that about which she wrote. She wrote briefly of the importance of the kindergarten for children between the nursery and the primary-school. I want to quote a part of her letter. Speaking of the trained teachers that children need, she says:

"To obtain such a class of teachers, it is necessary for parents first of all to make themselves acquainted with Froebel's art and science; and, secondly, to support with their money and personal sympathy kindergartens with properly trained teachers.

"To promote these objects, therefore, the Kindergarten Association of Boston proposes that parents all over the country shall form in their own neighborhoods simple unions, to meet at least once a month, for the purpose of reading and conversing with each other on the subject of kindergartening; being quite sure, if they do so, that they will very soon be prompted to do all that is requisite to have kindergartens for their own and their neighbors' children at once, and to support the teacher whom they shall procure with all the necessary means for her success.

"Already one such union has been spontaneously formed in the town of Montclair, N. J., whose members meet once a fortnight to read and converse. They began, as any other union can do, with procuring from the National Bureau of Education its circular of Information on Kindergartens, for July, 1873, containing the Baroness Marenholtz-Bulow's statement of what a true kinder-

garten is. The Commissioner, General Eaton, will send this pamphlet for the asking, without price.

"The Montclair Union has already procured and supports a kindergartener, who meets with the mothers to read kindergarten literature, and with whom they converse and sympathize. It has proved a complete success, and continues to be more and more interesting to the members. The grown daughters of the members also visit the kindergarten, and find it delightful to assist under the direction of the kindergartener, who is thus enabled to enlarge her numbers, while they are obtaining the highest touch of culture for future motherhood and general womanly influence in society."

Miss Peabody also announces that the Boston Kindergarten Association intends to start a journal during the present summer, to be edited by herself, "the first number of which will be sent to any union that will make known its existence to the Association." Miss Peabody's letter was written by the order of that Association, and I have been disappointed at not seeing it more widely copied.

Such co-operation on the part of parents would have many excellent results, I am sure. Mothers are growing almost desperate from need of some such help. I was a good deal moved by a short and hasty letter which I received the other day from a woman of such happy combination of circumstances—fine healthy organization, large motherly heart, comfortable pecuniary relations, congenial marriage, bright and loving and healthy children—that I could hardly think of any *awakened* woman (for most mothers are still half dozing, intellectually, as mothers) less likely to suffer from the awful pinch that mothers are being brought into by the increasing demands of science on one side and social customs on the other. But this woman wrote me: "I have such an intense desire to possess the book you wrote about in the last *Agriculturist*, that I have taken my pen on Monday, in the midst of innumerable cares, to beg of you to get it for me. If there is anything that will help me to be loving and gentle, patient and forbearing with these dear little ones, I want it. I have always been looking for something of the kind, and perhaps this will fit my case."

Help her to be "loving and gentle, patient and forbearing!"—when she is all that by nature. Sometimes I feel almost guilty for having so strongly recommended "Bits of Talk." Everybody admits how silly it is to preach moral truths to a starving man. "Nourish his body first," they say, and then feed the mind. The mothers who have ears to hear and hearts to feel what "H. H." says, are often so crowded and pressed with other cares and duties, that they can not fulfill half the motherly duties which they already are aware of. If I could only take the sewing, and washing, and ironing, and cooking, and care of servants and guests and house, and chignons and wearisome clothing, and leave mothers *free* to act as rational women and sensible mothers, I might well enough call upon them to listen to "H. H." I do not know the personal circumstances of "H. H.," but I have a feeling that she has probably had only one babe at a time on her hands. Has any one ever told in print how wearing it is to a mother's nerves to have the baby kept from going to sleep at the proper time and awoken too soon by the very natural and innocent and irrepressible noise of other young children? how hard to hear the last baby but one—still a baby, and still having a right to its mother's arms when tired or in trouble—to hear it pleading vainly in weariness or in grief for its mamma when the last baby can not possibly be turned off? how discouraging to wait vainly for a chance to give to the child of four or five years the help or information which its development needs and craves?

Oh! these mothers' hearts! What a strain is put upon them! Oh! the need—the awful need of patience!

There are two kinds of patience, I think—one physical, the other spiritual. I can not wonder that the former fails when such unreasonable strain is put upon it; but let us do our best to keep our

souls steadfast in the higher, spiritual patience. Don't you know what I mean? Why, just to *do our best, and trust in God for the rest*. I am sorry that the nerves give out so, and the patience which depends largely upon good health, the physical patience, fails so often—it is so bad for the little ones. Did you never sit down and cry in sheer pity for your children because they had such a "poor stick" of a mother? No? Well I am glad of it, and hope you never will come to such a pass; but if you ever should, you may be sure that at least one woman knows how you feel, and would be glad to give you all the intelligent sympathy you need—and this is the advice she would give you: Stop crying as soon as possible, and look about you for more help. See how many of your present burdens you can reasonably drop, and look in every direction for helps.

Speaking of helps, nothing that I am able to see offers such grand help to parents and to children as the kindergarten. But we who know this, and who are full of longing to avail ourselves of its aid, can not do so because others around us are ignorant of its value. Let us set to work to gather and to scatter all possible information upon the subject. Now, how many "Parents' Unions" can we get started in the neighborhoods where this paper circulates?

TESTED RECIPES FOR PLAIN CAKE.—*Plain Sponge-Cake.*—Two eggs; one cup of powdered sugar; one cup of sifted flour; one and a half teaspoonful of good baking-powder (or one teaspoonful of cream-of-tartar and half as much soda). Always beat the whites and yolks separately for sponge-cake. Sponge-cake that is not "plain" might well be called egg-cake, it is such a perfect puff of sweetened and flavored egg-foam, with only enough flour to give it body. Any cake having the "sponge" characteristic must be made of well-beaten eggs, however few they may be.

An acquaintance thinks this sponge-cake much improved by stirring in quickly and thoroughly at the last moment before it goes into the oven half a small teacup of boiling water. The rule given above makes only one small-sized loaf.

Poor-Man's Cake.—One cup of sugar; one third of a cup of butter; one egg; one half cup of sweet milk; one and a half teaspoon of baking-powder. This rule makes only one loaf. It is a good recipe to use for "patty" cakes.

APRONS FOR THE WASHERWOMAN.—I used to hear it said that a girl who slopped the suds from her wash-tub over the wash-board upon her clothing would be sure to marry a drunkard; but this sign, like others of its class, had no foundation in fact. Some persons soil their dresses at the wash-tub very badly. Not long ago I saw two women washing in the shade together, and each wore a water-proof apron made of black carriage-cloth. It was simply a piece of the cloth about three-fourths of a yard square, with strings fastened on two sides, about ten inches from the corner, so that one corner of the square was pinned to the waist for a bib.

[By "carriage-cloth" we suppose Mrs. Rochester means enameled cloth.—Ed.]

Wheaten Grits.—A correspondent at Morristown complains that with all the care of the cook the grits will not be good. We do not know exactly what preparation of wheat our correspondent refers to. We use that which is sold as "Cracked White Wheat." This, covered with cold-water, and cooked for two hours in a *farina-kettle*, comes out well done, and is "good." The *farina-kettle* has an outer vessel containing water and an inner one to hold the thing to be cooked, and it is impossible to burn the wheat.

Canning Green Corn and Peas.—Every season we have numerous letters asking how to can green corn and green peas. We are obliged to answer now as in former years, that these can not be put up in the family. They require expensive apparatus, and but few among the regular canning establishments undertake them.

BOYS & GIRLS' COLUMNS.

Attention, the Whole!

The "whole" means every boy and girl belonging to the great Agriculturist Family. See here! I wish to make a request or two of you, and I wish you to remember them. Aunt Sue and The Doctor are two very different persons; they live in different cities, and do not see one another more than once or twice a year. Therefore, if you have anything to say to Aunt Sue, please don't send it to me, and if you have any message for me please don't send it to Aunt Sue. Please remember—write it down if you can't remember it—that Aunt Sue's address is Box 111, Brooklyn, N. Y., and that mine is 245 Broadway, New York. We are miles apart, and if you send communications to one intended for the other they have to be sent—as you should have sent them in the first place—by mail. Moreover, in your letter to either of us, do not include business matters; not that we are unwilling to attend to any requests of our young friends, but because it makes delay. For instance, when I offer prizes, I do not open any of the letters until all are in. In the last competition there were several who wrote upon business, and some letters contained money, which laid unopened for a month after they were received. Grown people sometimes mix up things in this way, but I hope that after reading this notice you youngsters will not do so. Everything in relation to subscriptions and all other business should be addressed to Orange Judd & Co., 245 Broadway, New York, and will be promptly attended to; but when you write on such matters to either Aunt Sue or myself you will be obliged to exercise patience.

THE DOCTOR.

Skeleton Leaves.—"S. M. J." We should be glad to give an article on skeletonizing leaves for the boys and girls were it not that the process is a difficult one for older people, and only those who have great tact, patience, and skill succeed in making specimens. The process requires very careful manipulation—If you do not know what that means you must look it out in the dictionary. The minute particulars can only be learned by practice. The process depends upon the fact that leaves have a woody framework of ribs and veins, as they are called, which is filled in with the soft green matter of the leaf. Outside of the whole is a thin skin, which is attached to the other parts more or less strongly in different leaves. Perfect leaves are gathered when fully developed, but not too old, and placed in a stone jar or wooden firkin; boiling water is poured over the leaves, and they are allowed to remain in the water for weeks, until the skin of the leaf and the soft green portion are loosened by decay, and separate readily from the woody framework. The proper time to take the leaves out is only to be known by trial. Each leaf is spread upon a plate of glass and gently rubbed with a brush under a stream of water until all but the framework is washed away; it is then put into a solution of chloride of lime to bleach it, and then washed and dried flat between folds of paper or the leaves of a book. The leaves are afterwards mounted, artificial stems of waxed thread being used. Some leaves skeletonize in a week or two, others require two or three months, and others—such as the oak—have thus far been found impracticable. Some seed-pods make very pretty objects when treated in this way. The capsule of the common Stramonium, also known as Jamestown-weed, Stink-weed, and Apple of Peru, makes a very pretty object, and is one of the easiest things to skeletonize. If the seed-pods be taken before they begin to turn yellow, and are treated as above described, their green portion soon decays, and leaves a most beautiful framework of fibers, from which the pulpy matter is readily separated by washing. If S. M. J. knows any lady who is successful in skeletonizing, she can learn more by watching her for a short time than she can from any book that we are acquainted with.

The Menagerie Prizes.

One young man writes me that he is much disappointed that he did not get the prize, and asks me to publish the winning essay, in order that he may see wherein he failed. I would gladly do this, but as the prize essay would, if printed, take about four such pages as this, it is impossible. I, with three others, gave several evenings and a whole day to a careful examination and comparison of the essays, and as neither of us knew a single competitor, I have no doubt that the awards were made as impartially as possible, and solely upon the merits of the articles. All that our disappointed friend can do is to try another time. When the weather becomes cooler I will select the best Walrus story for publication.

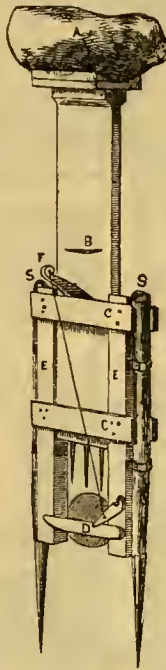
Nota.—If any wish their essays returned they must send

stamps (letter postage) during the month of July, as after that they will be destroyed.

THE DOCTOR.

A Woodchuck Trap.

In some localities the Woodchuck—or, as it is often called, Ground-Hog—is exceedingly destructive to farm crops. It delights in a luxuriant field of clover, and in a



short time does much injury. Cabbages are a favorite food with the Woodchuck, and its ravages in a cabbage field are often of serious loss to the farmer. The Woodchucks must be shot or caught, and the work of trapping them usually falls to the boys. Mr. G. H. Smith, of Wyoming Co., N. Y., thinks that our boys will be pleased with a trap that he has invented, as it can be readily made from such materials as are at hand, and it is more humane than a steel trap, as it kills at once, while that holds an animal in suffering until some one attends to it. We give an engraving made from a sketch furnished by Mr. Smith, and think that the construction of the trap will be readily understood by reference to the letters. To begin with, there is a heavy stone (A) which rests upon a shelf attached to a common fence-board (B), which is 2½ feet long, and has at its bottom three iron spikes made of strong wire and sharpened at their lower ends. Two upright pieces (E, E) slightly thicker than B, to allow that to slide easily, are connected by four cross-pieces (C, C); one of the upper ones of these cross-pieces should be beveled to give a proper purchase to the lever (F). This lever (F) is made thick, and so shaped that it will fit into a notch in the upright piece like that shown at B, but of course lower down, so that the lever (F) will catch in it when it is in the position shown in the engraving. Two stakes (S, S) are driven into the ground to hold the trap upright, and directly in front of the Woodchuck's hole. The trigger (D) is placed across the hole, so that a slight pressure will spring it. It will be seen that a small stick catches in a notch in the trigger, and a string passes from this to the lever (F) which holds up the board (B). If the trigger (D) be lowered, the trap will be sprung.

Aunt Sue's Puzzle-Box.

CROSS-WORD.

My first is in pepper but not in salt.
My next is in whisky but not in malt.
My third is in carpet but not in rug.
My fourth is in camphor but not in drug.
My fifth is in New Hampshire but not in Vermont.
My sixth is in fountain but never in font.
My seventh is in hunting but not in flag.
My eighth is in mountain but not in crag.
My whole is the name of a beautiful bird;
If you can't find it out it will be absurd.

OWEGO.

ADDED LETTERS.

1. What letter makes a bird a dog?
2. What letter makes a grain an animal?
3. What letter makes the sun a fish?
4. What letter makes an insect a beverage?
5. What letter makes sunshine destructive?
6. What letter turns a large animal into a small one?
7. What letter turns the specific name of a bird into its generic name?
8. What letter changes one instrument into another?

ITALIAN BOY.

NUMERICAL ENIGMA.

I am composed of twelve letters.

My 1, 2, 3, 4, 5 is an Eastern city.

My 1, 2, 3, 4, 5, 6 is one of a certain race.

My 3, 4, 5, 6, 7 is a goddess.

My 8, 11, 7, 6, 9 is a musical instrument.

My 12, 10, 11, 8 is a twig.

My whole is a city in a Western State.

F. A. SCHULTZE.

PI.

So lal het shamponit gentefl ni eth tism
Fo item, hoghut agreeal lal, dan thylog hint,
Stom balastintnsun, lensultanes hades
Saw thyarle meaf.

O. A. GAGE.

ALPHABETICAL ARITHMETIC.

OAK) H R I G C N M (O G G K N

I H H

O O G G

O M I N

O R A C

O M I N

R C I N

R R G N

R H M M

R O N K

C N

"SWEET P."

SQUARE WORDS.

1. To expect with desire.
2. An egg.
3. Onitless.
4. A bird of Australia.

BEN. R. S.

HIDDEN CITIES.

1. Whoever heard of cars on city alleys?
2. One dog mad is one too many.
3. I can not say Brooks was very much in the wrong.
4. Bravely the tyro meets his fate.
5. His little royal game is spoiled.
6. Mr. Phelan sings here to-night.
7. O I ma has hurt herself.

J. H. CRAIG.

DIAMOND PUZZLE.

1. Part of an emerald.
 2. An animal.
 3. Reservoirs.
 4. One without a home.
 5. A city.
 6. What ships are often called.
 7. Facetions.
 8. A pronoun.
 9. Part of a rose.
- The center letters, horizontal and perpendicular, name the city where we live.

W. P. & E. H. ALBRIGHT.

PRINCE ALBERT

437. Illustrated Rebus—and a geographical one at that.



438. Illustrated Rebus.—What every boy and girl ought to be able to say in reference to something.

ANSWERS TO PUZZLES IN THE JUNE NUMBER.

SQUARE WORDS.—

- | | |
|----------|----------|
| 1. OCEAN | 2. SPARE |
| CRAVE | PAPER |
| EAVES | APPLE |
| AVERT | RELIC |
| NESTS | ERECT |

ALPHABETICAL ARITHMETIC.—

243) 57628 (237

493

902

729

1738

1701

37

Key: Golden Feb.

NUMERICAL ENIGMA.—Hearth.

TRANSPOSITIONS.—1. Mas-
quending. 2. Interstice. 3.
Ascertained. 4. Persistent.
5. Remembrances. 6. Com-
panionship.

CROSS WORD.—Aunt Sue.

PL.—Do unto others as you
would have others do unto
you.

DOUBLE ACROSTIC.—
P-etre—L
A-nchov—Y
C-hameleo—X
O—X

REBUSSES.—423. Grate—Grater.
436. To be intent only on
trifles angers a weak mind.

AUNT SUE'S NOTICES TO COR-
RESPONDENTS.

RONT. W. M.—If your puzz-
les are good ones, they would
be acceptable. I might as well
warn you that it will not be
worth while to send numerical
or cross-word enigmas.

Thanks for letters, puzzles,
etc., to J. C. C., Little Mac,
S. F. S., F. T. G., Lillie H. M.,
R. W. M., Jere P., W. P. &
E. H. A., Addie K. S., F. W.
T., and Duchie Welch.

AUNT SUE's address is Box
111, P. O., Brooklyn, N. Y.

No Thoroughfare
is the title by which
the artist calls this pleas-
ing picture. There you
are, youngster, mother has
fastened you in so that
you will be all safe while she is at her work. She
did not think of the flowering vine that runs up on
the side of the cottage. Baby has a love for flowers, and
his quick eye has caught the sight of a bright blossom
which he must have. Let us hope that he gets the
wished-for flower, and that the mother is not made un-



NO THOROUGHFARE.—Drawn and Engraved for the American Agriculturist.

secure it. Oh that babies could think! But they do not.
Is not this the trouble with some large babies?

A Rope Ferry.—Did you ever see one?
They are not common, and probably only those boys

current which carries them down rapidly, while those on
the boat by means of oars and rudder do the best they can
to direct it to the opposite side. Sometimes a favorable
landing is made, but often the current carries the boat
far below its destination, and it has to be hauled back to
the landing by means of ropes. The current is not very

where the travel is not suffi-
cient to afford a bridge, the
streams are often crossed by
means of a ferry like that shown
in the engraving. A strong
rope is stretched from one
shore to the other, and usually
fastened at each end to a well-
rooted tree. The ferry-boat is
usually a scow or flat-boat,
with a deck level with its sides,
and so arranged that horses
and cattle and wagons can be
taken aboard. Upon the rope
stretched across the river there
is a large pulley, and to this
pulley is attached a rope which
is made fast to the boat. Now
let us suppose that a boat of
this kind is loaded and ready
to start. The ropes that fast-
ened it to the shore are let
go; the force of the current
tends to carry the boat down
stream; the attachment to the
rope across the river tends to
hold it still. As a sort of
compromise between these two
forces, the boat is carried across
the river. By a skillful manage-
ment of the rope that attaches
the boat to the pulley and the
rudder, the ferryman readily
conveys his cargo from one side
of the river to the other. If
the big rope should happen to
break, probably the passen-
gers would find themselves at
a different landing from the one
they intended to reach. Some
of the rivers of the far West,
like the Colorado, are too wide
for a rope-ferry, and these are
crossed by large boats which
are towed up stream by means
of ropes and then left to the



CROSSING A RIVER BY A ROPE FERRY.—Drawn and Engraved for the American Agriculturist.

happy by a scream that tells us that her darling has lost
his balance and fallen down the stairs in the attempt to
and girls who live in the newer parts of the country
can say "yes!" In many parts of the South and West,
violent near the shore where the water is shallow, and
the boat can be pulled along, though it is hard work.

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A Good Land Advertisement.

On the 18th of April, 1871, Messrs. R. C. and A. H. Vance bought of the Burlington and Missouri River Railroad Co., in Lincoln, the north half of the north-east quarter of section 19, T 9, R 4, east—80 acres at \$10 per acre—\$800. A. H. Vance, of Camden, Neb., now owns the whole tract, and says that the crops already raised by himself and brother off the 33 acres they have put under cultivation have paid for the whole 80 acres in two seasons. The land is in the valley of the Big Blue river, in Seward County, Neb.

Thousands should come and do likewise, and they will if they are wise. Indeed, crowds are coming now, daily; and such testimony as the above should keep the tide of immigration flowing until this goodly land is covered with thrifty farmers.—*Lincoln State Journal*, March 20th.

"Sod Corn Jones," of Pleasant Hill, "Lord Jones," of Crete, "Preacher Jones," and all other Joneses in Nebraska, with Mr. Vance, can and will corroborate that two crops will pay for B. & M. R.R. Land in Nebraska.
GEO. S. HARRIS, Land Comm'r,
LINCOLN, NEBRASKA.

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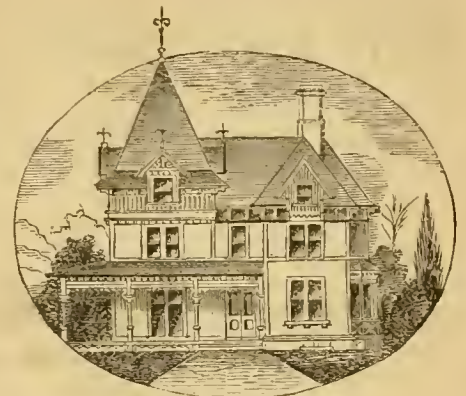
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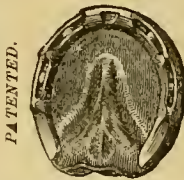
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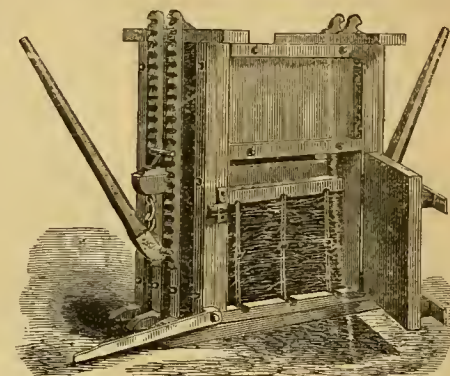


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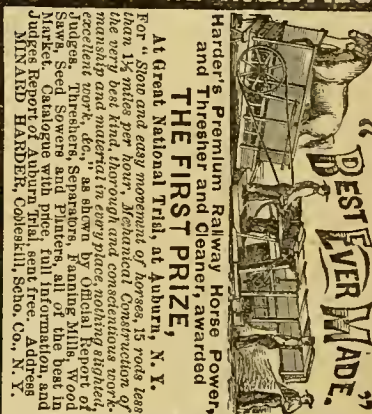
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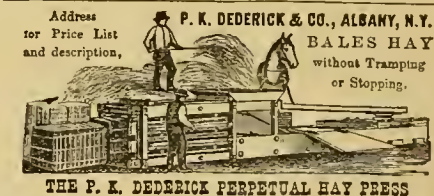


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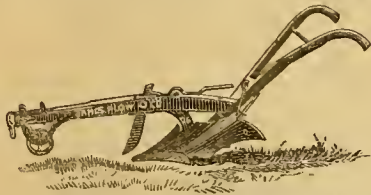
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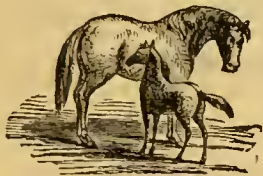
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[*Cincinnati Weekly Gazette*.

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[MONACE GREELEY in the *N. Y. Tribune*.

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OLD MRS. MEANS.

"Git a plenty while you're a-gittin'."

"Ralph sat by the fire the next morning trying to read a few minutes before school-time, while the boys were doing the chores, and the bound girl was milking the cows, with no one in the room but the old woman. She was generally as silent as Bud, but now she seemed for some unaccountable reason disposed to talk. She had sat down on the broad hearth to have her usual morning smoke; the poplar table, adorned by no cloth, sat in the floor; the unwashed blue tea-cups sat in the unwashed blue saucers; the unwashed blue plates kept company with the begrimed blue pitcher. The dirty skillets by the fire were kept in countenance by the dirtier pots, and the ashes were drifted and strewn over the hearth-stones in a most picturesque way.

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"Here Mrs. Means stopped to rake a live coal out of the fire with her skilny finger, and then to carry it in her skilny palm to the bowl—or to the hole—of her cob-pipe. When she got the smoke going she proceeded:

"'You see this here bottom land was all Congress land in them there days, and it sold for a dollar and a quarter, and I says to my ole man, 'Jack,' says I, 'Jack, do you git a plenty while you're a-gittin'. Git a plenty while you're a-gittin', says I, 'fer 't won't never be no cheaper'n 'tis now,' and it ha'n't been, I knowed 'twouldn't, and Mrs. Means took the pipe from her mouth to indulge in a good chuckle at the thought of her financial shrewdness. "'Git a plenty while you're a gittin'," says I. I could see, you know, they was a powerful sight of money in Congress land. That's what made me say, "'Git a plenty while you're a gittin'." And Jack, he's wuth lots and gobs of money, all made out of Congress land. Jack didn't git rich by hard work. Bless you, no! Not him. That a'n't his way. Hard work a'n't, you know. 'Twas that air six hundred dollars he got along of me, all salted down into Flat Crick bottoms at a dollar and a quarter a acre, and 'twas my sayin' 'Git a plenty while you're a gittin' as done it.' And here the old ogre laughed, or grinned horribly, at Ralph, showing her few straggling, discolored teeth."—*From "The Hoosier School-Master."*

NOTICES BY THE PRESS.

The development of the story is substantially a rude epic of truth, gentleness, and true pluck. For the young master, younger than most of his pupils, far more cultivated in every direction than any of the population, and practically religious, instructs the community as well as the school; reclaims some of the worst, foils some, and has some detected and punished; encourages and loves, and is loved by a charming orphan, and graduates into a higher position with the highest honors. The moral is one of robust manhood confirmed in the worst conditions.—*American and Gazette* (Philadelphia).

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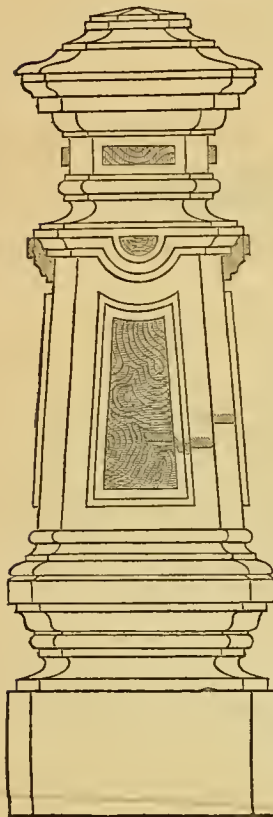
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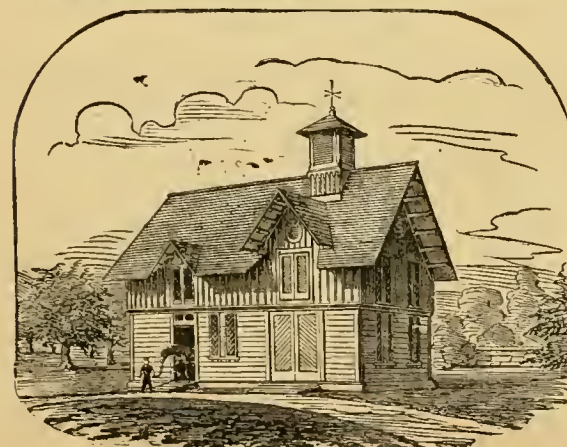
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THE NEW SINGING-MASTER.

"He sings like an owl-gale!"

Jonas Harrison was leaning against the well-curb, talking to Cynthia Ann. He'd been down to the store at Brayville, he said, a listenin' to 'em discuss Millerism, and seed a new singing-master there.

"Could he sing good?" Cynthia asked, rather to prolong the talk than to get information.

"Sings like an owl-gale, I reckon. He's got more seals to his ministry a-singing onto his watch-chain than I ever seed. Got a mustache onto the top story of his mouth some-thin' like a tuft of grass on the roof of a ole shed kitchen. Peart? He's the peartest-lookin' chap I ever seed. But he a'n't no singin'-master—not ef I'm any judge of turnips. He warn't born to serve his day and generation with a tunin'-fork. I think he's a goin' to reckon-water a little in these parts, and that he's only a-playin' singin'-master. He kin play more fiddles'n one, you bet a hoss! Says he come up here fer his wholesome, and I guess he did. Think ef he'd a-staid where he was, he mout a-suffered a leetle from confinement to his room, and that room p'raps not more nor five foot by nine, and rather dim-lighted and poor-provisioned, an' not much chance fer takin' exercise in the fresh air!"

"Don't be oncharitable, Jonas, don't. We're all mis'able sinners, I s'pose; and you know charity don't think no evil. The man may be all right, ef he does wear hair on his lip. Charity kivers lots o' sins."

"Ya-as, but charity don't kiver no wolves with wool. An' ef he a'n't a woolly wolf they's no snakes in Jersey, as little Eldin' Hood said when her grasony tried to bite her head off. I'm dead set in favor of charity, and mean to gin her my vote at every election, but I a'n't a-goin' to have her put a blind-bridle on to me. And when a man comes to Clark township a-wearing straps to his breech-sloons to keep himself from leaving terry-firmy altogether, and a-weightin' hisself down with pewter watch-seals, gold-washed, and a cultivatin' a crap of red-top hay onto his upper lip, and a-lettin' on to be a singin'-master, I suspicious him. They's too much in the git-up fer the come-out. Well, here's yer health, Cynthia!"

And having made this oracular speech, and quaffed the hard limestone water, Jonas hung the clean white gourd from which he had been drinking, in its place against the well-cure, and started back to the field, while Cynthia Ann



"Don't be oncharitable, Jonas."

carried her bucket of water into the kitchen, blaming herself for standing so long talking to Jonas.—From "*The End of the World*."

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Dr. Eggleston, in striking out into the uncouth wilderness of early "Hoosierdom" for the materials of his tales, has entered into an emphatically new field, and by the production of but two books has achieved for himself indisputable immortality.—*Dayton Religious Telescope*.

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Westcott had been drinking all of one night with some old cronies of the Elysian Club, and his merry time of the night was subsiding into a quarrelsome time in the morning. He was able, when he was sober, to smother his resentment towards Albert, for there is no better ambush than an entirely idiotic giggle. But drink had destroyed his prudence. And so when Albert stepped on the piazza of the hotel where Westcott stood rattling his pocketful of silver change and his keys for the amusement of the bystanders, as was his wont, the latter put himself in Charlton's way, and said, in a dreary, half-drunk style:

"Morin', Mr. Hedgehog! By George! he! he! he! How's the purty little girl? My little girl. Don't you wish she wasn't? Hard feller, I am. Any gal's a fool to marry me, I's'pose. Katy's a fool. That's just what I want, by George! he! he! he! I want a purty fool. And she's purty, and she's — the other thing. What are you goin' to do about it? He! he! he!"

"I'm going to knock you down," said Albert, "if you say another word about her."

"A'n't she mine? You can't help it, either. He! he! The purty little goose loves Smith Westcott like lots of other purty little —"

Before he could finish the sentence Charlton had struck him one savage blow full in the face, and sent him staggering back against the side of the house, but he saved himself from falling by seizing the window-frame, and immediately drew his Deringer. Charlton, who was not very strong, but who had a quick, lightning-like activity, knocked him down, seized his pistol, and threw it into the street. This time Charlton fell on him in a thoroughly murderous mood, and would perhaps have beaten and choked him to death in the frenzy of his long pent-up passion, for notwithstanding Westcott's struggles Albert had the advantage. He was sober, active, and angry enough to be ruthless. Westcott's friends interfered, but that lively gentleman's eyes and nose were sadly disfigured by the pummeling he had received, and Charlton was badly scratched and bruised.

Whatever hesitancy had kept Albert from talking to Katy about Smith Westcott was all gone now, and he went home to denounce him bitterly. One

may be sure that the muddled remarks of Mr. Westcott about Katy—of which even he had grace to be a little ashamed when he was sober—were not softened in the repetition which Albert gave them at home. Even Mrs. Plausaby forgot her attire long enough to express her indignation, and as for Miss Marlay, she combined with Albert in a bayonet-charge on poor Katy.

Plausaby had always made it a rule not to fight a

As a literary work it is admirable. The illustrations are very expressive.—*Chicago Evening Journal*.

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"ONE SAVAGE BLOW FULL IN THE FACE."

current. Wait till the tide turns, he used to say, and row with the stream when it flows your way. So now he, too, denounced Westcott, and Katy was fairly borne off her feet for a while by the influences about her. In truth, Katy was not without her own private and personal indignation against Westcott. Not because he had spoken of her as a fool. That hurt her feelings, but did not anger her much. She was not in the habit of getting angry on her own account. But when she saw three frightful scratches and a black bruise on the face of Brother Albert, she could not help thinking that Smith had acted badly. And then to draw a pistol, too! To threaten to kill her own dear, dear brother! She couldn't ever forgive him, she said. If she had seen the much more serious damage which poor, dear, dear Smith had suffered at the tender hands of her dear, dear brother, I doubt not she would have had an equally strong indignation against Albert.—*From "The Mystery of Metropolisville."*

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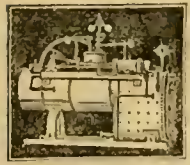
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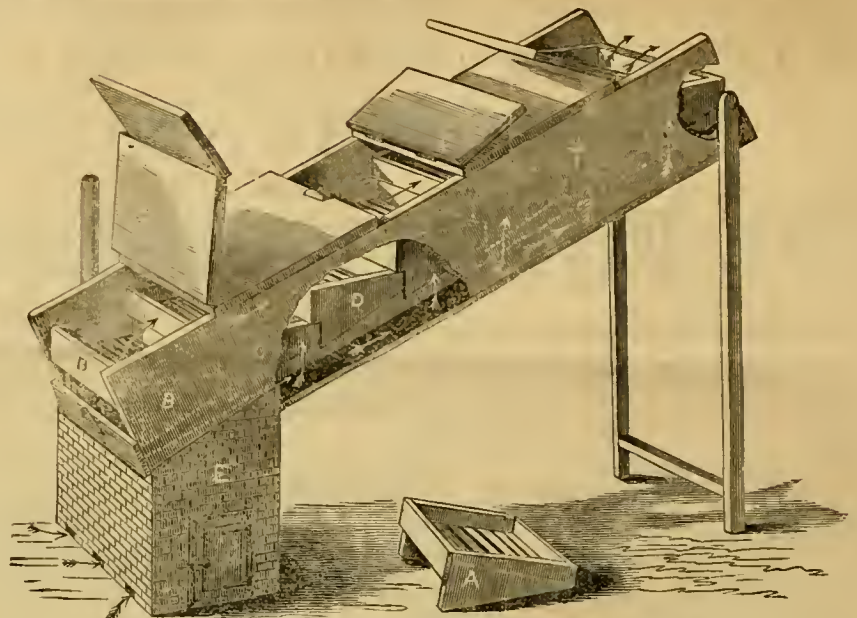
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No. 1, 24 inches wide and 12 feet long, \$25.00.
No. 2, 30 inches wide and 14 feet long, \$35.00.
No. 3, 36 inches wide and 16 feet long, \$45.00.

The above are the factory prices, all complete except stove—delivered at the freight or express office, London, Pa. Any common nine or ten-plate or any other kind of wood or coal stove can be used. Printed directions for setting up and operating sent with each machine.

No. 1 is a convenient size for general use, and will dry all the surplus fruit on any ordinary farm, drying as fast as two hands can hand-pare and cut the fruit.

No. 3 will give employment to four hands.

For fruit-growers in the fruit districts we make a series of **DRIERS** to do any given amount of work, ranging in price from \$100 to \$500.

Portable **DRIERS** with sheet-iron stoves all ready to operate, and exhibition models for agents, furnished to order; prices according to size, style, and finish.

Furnaces and steam-heaters for large **DRIERS** furnished at the lowest rates.

Samples of fruits and vegetables dried in the **AMERICAN DRIER** sent by mail or express, prepaid, on receipt of 25 cents.

We also invite the attention of manufacturers of various articles which require drying, to the combination of principles embraced in the **AMERICAN DRIER** patent claims. By special mechanical arrangements it may be adapted—on a large scale—to various purposes, such as drying grain, hops, herbs, chemicals, paper, straw-boards, lumber, and for drying and curing beef, pork, fish, etc., etc.

Agents wanted to introduce and sell the **DRIERS**, and the rights to make and use them.

For further information, show-bills, circulars, and special terms to agents, send name and post-office address, inclosing stamp, to the

AMERICAN DRIER CO.,

LOUDON, FRANKLIN CO. PA.

A model of the Drier may be seen at the office of *American Agriculturist*, 245 Broadway, N. Y.

AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN,"—WASHINGTON.

ORANGE JUDD COMPANY,
PUBLISHERS AND PROPRIETORS.
Office, 245 BROADWAY.

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NEW SERIES—No. 320.



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THE ROMAN CATTLE-DRIVER.—AFTER A PICTURE BY DIDIER.—*Drawn and Engraved for the American Agriculturist.*

Under the title "Picador Romain," Mr. Knedler, to whom the public are indebted for many fine works of art, has published a large colored print of a painting by Jules Didier. We reproduce this, by permission, not only because it is a very spirited piece of drawing, but for the glimpse it gives of the rural manners and customs in other countries. The picturesque costume, with the armed legging, are such as we must cross the ocean or go into Spanish-American countries to find; and the effect of it

is much heightened by brilliant and strongly contrasted colors. The ponderous saddle and the murderous bit are peculiar to south European countries, and they are to be found in a modified form in South America and Mexico. In the harried, frantic ox that is rushing into a slough to escape its persecutor we see the prototype of our Texan cattle, the long horns of which are now familiar in our cattle markets. The driver is armed with a stout staff, one end of which is shod with iron. This is the "pica,"

the pike, or lance, and the one who uses it is called a "picador." In the savage state in which the animals of southern countries are allowed to remain it is perhaps necessary for one who goes among them to be provided with means of defense against a vicious animal; but the Italian or Spanish cattle-driver is nothing if not brutal, and in his eyes cattle seem to be made only to be tortured. In countries where bull-fights are a popular amusement we can hardly look for kindness to animals.

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Day of Month.	Day of Week.	Boston, N. Eng-land, N. York State, Michi-gan, Wiscon-sin, Iowa, and Oregon.			N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Ken-tucky, Missis-sipi, and Cal-ifornia.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
1	M	5:24	6:37	11:43	5:27	6:33	11:51	5:29	6:31	12:00
2	T	5:26	6:38	11:45	5:28	6:34	11:53	5:30	6:32	12:01
3	W	5:27	6:39	11:46	5:29	6:35	11:54	5:31	6:33	12:02
4	T	5:28	6:40	11:47	5:30	6:36	11:55	5:32	6:34	12:03
5	F	5:29	6:41	11:48	5:31	6:37	11:56	5:33	6:35	12:04
6	S	5:30	6:42	11:49	5:32	6:38	11:57	5:34	6:36	12:05
7	S	5:31	6:43	11:50	5:33	6:39	11:58	5:35	6:37	12:06
8	T	5:32	6:44	11:51	5:34	6:40	11:59	5:36	6:38	12:07
9	T	5:33	6:45	11:52	5:35	6:41	12:00	5:37	6:39	12:08
10	W	5:34	6:46	11:53	5:36	6:42	12:01	5:38	6:40	12:09
11	T	5:35	6:47	11:54	5:37	6:43	12:02	5:39	6:41	12:10
12	F	5:36	6:48	11:55	5:38	6:44	12:03	5:40	6:42	12:11
13	S	5:37	6:49	11:56	5:39	6:45	12:04	5:41	6:43	12:12
14	S	5:38	6:50	11:57	5:40	6:46	12:05	5:42	6:44	12:13
15	T	5:39	6:51	11:58	5:41	6:47	12:06	5:43	6:45	12:14
16	T	5:40	6:52	11:59	5:42	6:48	12:07	5:44	6:46	12:15
17	W	5:41	6:53	12:00	5:43	6:49	12:08	5:45	6:47	12:16
18	T	5:42	6:54	12:01	5:44	6:50	12:09	5:46	6:48	12:17
19	F	5:43	6:55	12:02	5:45	6:51	12:10	5:47	6:49	12:18
20	S	5:44	6:56	12:03	5:46	6:52	12:11	5:48	6:50	12:19
21	S	5:45	6:57	12:04	5:47	6:53	12:12	5:49	6:51	12:20
22	T	5:46	6:58	12:05	5:48	6:54	12:13	5:50	6:52	12:21
23	T	5:47	6:59	12:06	5:49	6:55	12:14	5:51	6:53	12:22
24	W	5:48	7:00	12:07	5:50	6:56	12:15	5:52	6:54	12:23
25	F	5:49	7:01	12:08	5:51	6:57	12:16	5:53	6:55	12:24
26	S	5:50	7:02	12:09	5:52	6:58	12:17	5:54	6:56	12:25
27	S	5:51	7:03	12:10	5:53	6:59	12:18	5:55	6:57	12:26
28	T	5:52	7:04	12:11	5:54	7:00	12:19	5:56	6:58	12:27
29	T	5:53	7:05	12:12	5:55	7:01	12:20	5:57	6:59	12:28
30	W	5:54	7:06	12:13	5:56	7:02	12:21	5:58	7:00	12:29
31	T	5:55	7:07	12:14	5:57	7:03	12:22	5:59	7:01	12:30

PHASES OF THE MOON.

MOON.	BOSTON.	N. Y. ORK.	WASH'N.	CHAS'TON.	CHICAGO.
Full M'n	6 4 25 ev.	4 13 ev.	4 1 ev.	3 49 ev.	3 29 ev.
3d Quart.	12 10 57 m.	10 45 m.	10 23 m.	10 21 m.	9 51 m.
New M'n	21 1 7 ev.	0 55 ev.	0 43 ev.	0 31 ev.	0 1 ev.
1st Quart.	29 12 10 m.	10 0 m.	9 48 m.	9 35 m.	9 6 m.

AMERICAN AGRICULTURIST

NEW YORK, SEPTEMBER, 1873.

September is usually one of the pleasantest months in the year. It is also, on our own farm, a month of comparative leisure. There is plenty of work to be done, but nothing that will suffer from a day's delay. Wheat, barley, peas, and oats are all harvested and not unfrequently thrashed. We are beginning to receive the reward of our labor, and at the same time are preparing for another harvest. If our crops do not turn out well we can hope for better results next year. But let us see to it that we have just grounds for hope. The farmer who uses the proper means may reasonably hope for good crops. "The fool desireth and hath not." He hopes for clean land without making any effort to kill the weeds; and expects large crops from poor, ill-prepared fields.

We would again and again urge all farmers who read the *American Agriculturist* to make an earnest effort to adopt an improved system of agriculture. There is pleasure and profit in good crops. It is slow work improving land, but if we stick to it the end is sure. Each year should find us better men and better farmers.

Hints about Work.

Sowing Winter Wheat.—Comparatively little can now be done in preparing land properly for wheat. The work should have been done earlier. As a rule, it would be better not to sow wheat at all than to sow on land that is too wet, too poor, and too foul to produce a fair crop.

We Spend Labor Enough in many cases in preparing our land for wheat, but rarely give time enough. To plow twice in two or three weeks, and harrow and roll until the land is as mellow as a garden is not the way to secure a good wheat crop. The same amount of labor expended over a longer period would produce far better results.

In England, Great Crops of Wheat are raised by turning over a clover sod and drilling in the wheat as fast as the land is plowed. We could do the same thing here provided our land was in as high condition and the season was wet enough to in-

sure the germination of the seed and the growth of the young plants.

We Sow a Month Earlier than they do in England, and it often happens that the land is so dry and hard at this season that we should find it difficult to turn over a clover sod. In exceptional seasons we have known a good crop of wheat grown on a clover sod not plowed until the middle of September, and sown at once on the furrow and harrowed in. But the plan will not do here as a rule.

Wheat after Spring Crops is now far more common than formerly. We adopt this system on our own farm, and therefore can not condemn it; and yet we are satisfied that many farmers would do well to abandon the practice.

The Great Aim of the Wheat-Grower must be to get a vigorous, healthy plant in the autumn. He must endeavor to secure this by having rich, moist, and mellow land rather than by early sowing.

If we Sow too Early we run great risk of having the crop injured by the Hessian fly.

On our own Farm we aim to sow from the 5th to the 15th of September. If the land is in prime order we would prefer to sow not earlier than the 15th.

Two Bushels per Acre is our rule, and we do not find it too much, though many good farmers think $1\frac{1}{2}$ bushel is enough.

Drilling is better than sowing broadcast. It deposits the seed more evenly, and deposits it in the moist earth.

The Depth of Sowing is regulated by the character of the soil. It would be well not to cover the seed more than an inch deep; but if this does not reach the moist earth the drill must be set to sow deeper. It is very important to put the seed where it will germinate in a few days.

Where Smut is Common the seed should be washed in some preparation to kill the spores of smut before sowing. Moistening the grain with fermented chamber-lye and drying it with lime is an old remedy, and if properly done is effectual. See article on page 330.

Manuring for Wheat is less common than it should be. A little rich, well-rotted manure spread on the surface before or after the seed is sown often has a wonderful effect.

Salt on rich land frequently proves a good fertilizer for wheat. Sow from two to five bushels per acre broadcast before putting in the wheat.

The Best Artificial Manures are those of an ammoniacal character, such as Peruvian guano and blood manure. Nitrate of soda is a favorite manure in England mixed with superphosphate—say 150 lbs. of each per acre. If we could buy the nitrate for four cents per pound and get \$2 per bushel for the wheat we could afford to use this manure.

Draining Out Manure for Grass-Land may be done at any time this month when the men and teams are available. Spread it at once and evenly.

Fall Work is sure to crowd us. It always does. Prepare for it.

Everything that can be done this month had better be done now than later.

Potatoes that are Ripe should be dug early, so as to be out of the way of pressing work next month.

If Prices are Satisfactory sell at once. This is always a safe rule for everything, but it is emphatically so for potatoes and other bulky articles.

Ditching on Low Land can now be done to advantage. Commence at the outlet and make the water follow you up into the land until your ditch is from three to four feet deep. In this way you will lose no fall.

Fire-Wood should be provided for winter, if not already attended to.

Trim the Sides of Ditches, and cut down all weeds in fence-corners, etc.

Fall Plowing is good. Fall following is better.

Make the Weeds Grow and then kill them next spring. To do this plow and harrow as much as possible.

Sow Grass Seed on vacant spots in meadows and harrow it in.

Corn should be cut as soon as the grain is glazed. The fodder will be wanted next winter. Better cut too early than run the risk of having it injured by frost.

Attend the Fairs, and take your hired men and boys with you. Try and interest them in the implements, machines, and improved stock.

The Ladies should by all means go to the fair and have a good time. They should go to enjoy themselves. Take a basket of refreshments along. The eating arrangements at our fairs are usually of the most wretched description. If you see one of the *Agriculturist's* editors around, looking tired and hungry, ask him to take a bite.

Clover Seed should be ready to cut this month. Nearly all our combined reaper and mower machines cut it to perfection and rake it into bunches. The crop should be well cured and put in the barn. It is a difficult crop to secure in a stack without thatching. It is better not to thrash until cold weather.

ANIMALS.—When hay is scarce and high, as it now is with us, it is desirable to let all the animals run out at pasture.

Horses when running at pasture, unless it is unusually good, should not be worked as many hours as when fed on hay and grain. They require more time to eat. Give a feed of oats morning, noon, and night. Groom well at night before turning them out.

Cows will pay well for a little extra food night and morning. Corn-meal is now the cheapest food we have. It should be mixed with cut feed.

Sheep do not require any special care this month, but should not be neglected. See that the ram does not get to the flock of ewes unless you wish very early lambs. If you do, select out the strongest ewes and feed them a little grain for a week or so, or until they are served.

Lambs should be weaned, and the ewes put in a rather poor pasture and at some distance from the lambs. Let the lambs have the best of pasture and half a pint of grain each per day. Milk the ewes if necessary.

Dip the Sheep in a solution of carbolic soap to kill ticks and prevent scab, etc.

Swine.—Pigs that are fat should be disposed of. Pigs intended for fattening this fall should be pushed forward as rapidly as possible. Let them run out at pasture if convenient, but give them all the corn they will eat.

Breeding Sows should have the run of a good clover or grass pasture. They will require little other food.

Young Pigs ought to get the richest and best of food. There is nothing so good as skimmed milk with cooked corn-meal.

Work in the Horticultural Departments.

With September comes harvests, and though they may not be so abundant as the early spring promised there is not likely to be a very great scarcity in fruit or vegetables. A short harvest demands all the more care in preserving and making the most of what we have. In this month we are reminded that summer is over, and that preparations for winter can not be longer delayed. It is good economy to be a little ahead of the season in making ready for winter.

Orchard and Nursery.

Picking and Marketing fruit will occupy much of the attention of the orchardist. The articles by Mr. Helfrich in this and in preceding numbers are so full and so practical that we need say no more on this subject, but request all who send fruit to city markets to read them carefully and profit by their instructions. Those who take their fruit to village markets near by would find it to their interest to take more pains than they usually do.

Apples are shaken from the trees, thrown into a wagon-body, and sold for what they will bring. If nothing more can be done, let the wagon-body be lined with straw, and only fine, sound fruit be put in. It would be much better if the fruit could be taken in bushel baskets or even boxes. Attention to appearances will pay even in small markets.

Drying Fruit.—When the amount is large enough to warrant it, the American Dryer described in March last should be used. For small lots a frame covered with hot-bed or window sash will answer a good purpose. The frame or box should be raised from the ground, and have openings for ventilation, which are to be covered by wire-gauze or mosquito-netting to keep out flies and other insects.

Budding is to be continued. The time will vary with the season; when good buds can be procured, and the stock is in a growing condition so that the bark will lift, the operation may be performed.

Prepare for Fall Planting.—In mild climates, where the autumn is prolonged, fall planting of all except the stone fruits is advisable. Prepare the land by draining, manuring, and plowing, and mark it out, and set a stake showing the position of each tree, so that the planting may be done as soon as the trees can be procured from the nursery.

Labels will be needed, as those sent from the nursery are not sufficiently permanent. Pine labels, rubbed with white-lead and written upon with a lead-pencil, are most in use. Some prefer labels of sheet-zinc written with a common lead-pencil. These are said to last for years.

Seeds for nursery stock should be secured as they mature. Peach and plum stones should not be allowed to become too dry. Mix them with sand, and place them where they will be exposed to freezing during winter.

Insects require attention almost every month. Wind-falls should be picked up and fed to the pigs, as they generally contain a grub. Cocoons and all kinds of nests should be removed as soon as discovered. Whenever sawdust is found near the root of a tree a borer is at work, and should be cut or probed out.

Visit the Fairs.—There is no way in which a fruit-grower can learn so much as by visiting fairs where there is a good display of fruit and a goodly gathering of fruit cultivators. These gentlemen are generally very free to communicate their experience for the benefit of others. Take along with you all the

Nameless Varieties in your collection. There always will be in every large orchard some varieties of which the name is lost. It is very unsatisfactory to have a fruit without a name, and, more than this, its value is sensibly diminished if it is sent to market nameless.

Fruit Garden.

Make preparations for fall planting, and let them be thorough. Deep tillage and plenty of manure are essential to satisfactory results.

Blackberries will need occasional pinching to keep the canes and their lateral branches within bounds. If the old canes were not removed as soon as the crop was off, do it now. All shoots that come up between the rows should be hoed down unless wanted to make new plantations.

Raspberries require similar treatment to blackberries. Only three or four canes should be left to a stool. Black-caps should be kept bushy by pruning, unless it is desired to multiply them, when the branches may be allowed to reach the ground and take root at the tips.

Strawberries.—Plant as early this month as plants can be procured.

Pears.—The general rule is to pick when fully matured but before they mellow. The time will vary with the variety. When upon lifting a pear gently it parts readily from the tree it is ready to pick. If picked too early they will shrivel, and if left too long on the tree they will lack flavor. A little experience will soon teach the proper time.

All pears should be ripened in the house. A good plan is to lay them between the folds of a blanket if there is no regular fruit room.

Grapes.—As the early varieties ripen there will be a contest with the birds, and probably some shooting must be done. Directions for packing for market have been given. The later varieties may remain on until there is danger of frost.

Kitchen Garden.

As soon as a crop is off let the land be cleared at once, taking the rubbish to the pig-pen or the manure-heap as may be most advisable. The land may be manured and prepared for a spring crop, or for spinach or "greens" to be wintered over.

Beans.—Limas should be picked before frost. String-beans may be preserved by breaking them up as for cooking, and putting them down in jars with alternate layers of salt.

Cabbages and Cauliflowers.—Seeds of these are to be sown now for early crops next spring. In the neighborhood of New York the seeds of these are sown from the 10th to the 20th of the month, and give plants large enough to prick out into cold frames next month. Give the growing crop frequent hoeings, and if slugs injure them dust lime freely about the plants.

Sweet-Corn.—Save the best ears for seed. In drying use none older than would be fit for the table. Small quantities may be dried quickly in a stove-oven when the fire is low or the door left open.

Cucumbers for pickles, if wanted of small size, must be picked every day. Put into brine strong enough to float an egg. Large ones may be used for sweet pickles.

Celery will probably be late this season. Accelerate the growth by frequent hoeings, and when large enough begin the earthing up; handle carefully so that no earth will get among the stalks.

Endive.—Blanch when the plants are a foot across. This may be done by tying up, or by covering with a flower-pot, or by laying on with boards.

Kale or Greens may be sown for early spring. The variety called "sprouts" or German greens is the hardiest.

Melons are fit to pick when the stem parts readily from the fruit. The fruit is much improved by putting it upon ice a few hours before it is eaten.

Onions are ready to harvest as soon as the tops of a larger portion of the crop have fallen down. Let them dry in the sun for a few days, putting them in heaps at night, before storing. Store in an airy loft in thin layers to prevent heating.

Radish.—The Chinese Rose-colored is an excellent winter variety, and may be sown this month, and treated the same as turnips.

Spinach.—Sow for wintering about the middle of the month in drills 15 inches apart; give good cultivation, and when large enough thin if necessary to prevent the plants from being too crowded.

Sweet-Potatoes need not be harvested until frost touches the tops, but by carefully feeling in the rows some of the larger ones can be taken out for the table and the rest allowed to grow.

Squashes.—Do not disturb the vines if they have rooted at the joints. Harvest upon the first indications of frost. Save the green ones to use first.

Tomatoes.—The large "green worm" will make havoc not only with leaves but green fruit. The only remedy is to catch and kill. Cut away superfluous growth of vines. Preserve and make catsup while the fruit is in perfection.

Turnips.—The round sorts may be sown early this month in all spare places. Keep the Swedes or Ruta-bagas growing by proper cultivation.

Lettuce.—Sow for early crops or for forcing.

Weeds will require to be kept down, as they seed abundantly this month.

Flower-Garden and Lawn.

If the planting was properly considered, the garden should now be more brilliant than at any

time since June. The heats of August being over, most of the "foliage plants" will now grow luxuriantly and present a fine display of color.

Bulbs that are planted in fall, such as Hyacinths, Tulips, etc., should be procured as soon as the dealers open their stocks. The planting may be deferred until next month.

Chrysanthemums will need stakes to keep them from breaking down in heavy storms. Pot those needed for flowering in-doors. If caterpillars injure them band pick, and if a black aphid appears use tobacco water.

Bedding Plants, as a general thing, get too large to make it worth while to take them up, and it is with most kinds better to start a new stock from cuttings to keep over winter.

Dahlias will need especial care in tying up, and it may be well to use extra stakes to support the larger branches, else a strong wind may destroy the beauty of the plant. Remove all imperfect buds and spent flowers.

Lawns will require less frequent mowing. Remove weeds, and reseed any thin spots.

Perennials may be sown early and plants raised strong enough to winter over with a little protection. These will generally bloom the next year.

Pits should be made ready for the reception of half-hardy plants. A permanent pit walled up with brick is a useful appendage to a garden, but a substitute may be made with boards; it should be about six feet deep, and covered with sash, and have shutters to put on in cold weather.

Seeds.—Gather as they ripen, and label as soon as gathered. As soon as they can be cleaned rub them out and put away in tight packets.

Violets if wanted early in spring must be put in a frame this month. The frame should be set upon well-manured soil and the violets planted. When frosts come cover the plants lightly with leaves, put on the sash, and cover with mats or shutters on cold nights. Any time after mid-winter they may be brought into bloom by removing the leaves and giving them plenty of sun and air when the weather will allow.

Greenhouse and Window-Plants.

The houses and their heating apparatus should be in order, as a change in the weather may make it necessary to take in the more tender plants at once. All plants in the open borders that are to be grown in the greenhouse or dwelling should be potted before cold nights come on. See that all plants taken in-doors are free from insects and properly cut back. Have clean pots for potting. Those that have been kept in pots during the summer may need repotting; at all events, the surface soil should be removed and replaced by fresh. Camellias should have the foliage thoroughly washed, and if the buds are crowded some of them may be removed. Renew all defaced or illegible labels. Sow annuals, plant Cape-bulbs and Oxalis. Make cuttings from Geraniums and other soft-wooded plants.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Aug. 13th, 1873, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Poultry.
27 d's this m'th.	231,000	3,313,000	2,585,000	204,000	24,500	1,213,000	2,020,000	2,623,000	1,569,000
23 d's last m'th.	311,000	3,330,000	2,894,000	257,000	51,000	1,569,000	2,020,000	2,623,000	1,569,000
2. Comparison with same period at this time last year.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Poultry.
27 days 1873.	231,000	3,313,000	2,585,000	204,000	24,500	1,213,000	2,020,000	2,623,000	1,569,000
26 days 1872.	197,000	1,761,000	4,434,000	101,000	165,000	2,654,000	2,020,000	2,623,000	1,569,000
3. Comparison with same period at this time last year.									
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Poultry.
27 d's this m'th.	361,000	3,736,000	3,105,000	216,000	—	2,620,000	—	—	—
26 days 1872.	233,000	1,817,000	4,656,000	369,000	6,000	1,929,000	—	—	—

3. Stock of grain in store at New York.									
	Wheat.	Corn.	Rye.	Barley.	Oats.	Malt.	Butter.	Eggs.	Poultry.
Aug. 11, 1873.	327,332	1,402,095	175,081	8,292	816,292	238,751	—	—	—
July 7, 1873.	286,198	1,138,314	89,961	8,592	565,337	220,113	—	—	—
June 9, 1873.	136,531	531,891	43,232	13,357	162,044	197,651	—	—	—
May 5, 1873.	218,223	535,333	27,569	46,764	276,066	181,496	—	—	—
April 7, 1873.	483,004	866,207	55,819	83,680	665,598	178,232	—	—	—
Mar. 10, 1873.	611,197	2,515,892	37,302	298,493	816,596	166,392	—	—	—
Feb. 10, 1873.	805,561	3,189,195	37,583	468,934	979,131	175,100	—	—	—
Jan. 13, 1873.	1,177,359	4,713,971	44,397	571,451	1,367,187	175,805	—	—	—
Dec. 9, 1872.	1,315,915	5,675,730	51,695	624,534	1,608,865	215,326	—	—	—
May 8, 1871.	1,015,353	197,023	271,563	18,082	1,115,022	80,447	—	—	—
4. Exports from New York, Jan. 1 to July 31:									
	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Poultry.
1873.	794,998	9,278,612	7,509,337	327,510	19,266	204,339	92,496	—	—
1872.	547,794	5,479,949	11,573,818	510,678	22,676	207,676	128,698	—	—
1871.	1,055,919	10,566,653	6,311,632	71,899	11,797	167,601	—	—	—
1870.	1,069,237	10,236,257	2,201,617	65,734	—	11,205	—	—	—
1869.	812,754	9,699,403	1,37,077	72,811	—	47,727	—	—	—
1868.	575,091	3,209,204	4,939,872	153,093	—	40,643	—	—	—
5. Receipts at head of tide-water at Albany each season to July 31st.									
	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	Butter.	Eggs.	Poultry.
1873.	57,000	6,801,400	5,127,000	57,400	22,000	1,673,400	—	—	—
1872.	47,160	2,951,000	11,438,000	215,800	401,500	3,169,100	—	—	—
1871.	111,400	6,100,000	8,415,000	57,000	49,400	1,294,100	—	—	—
1870.	154,900	6,752,600	1,208,000	211,000	82,400	1,472,600	—	—	—

CURRENT WHOLESALE PRICES.									
	July 12.	Aug. 13.	July 12.	Aug. 13.	July 12.	Aug. 13.	July 12.	Aug. 13.	July 12.
PRICE OF GOLD.	115 1/2	115 1/2	115 1/2	115 1/2	115 1/2	115 1/2	115 1/2	115 1/2	115 1/2
Flour—Super to Extra State.	85	7 25	81 75	6 75	85	7 25	81 75	6 75	85
Super to Extra Southern.	5 25	10 50	5 00	10 10	5 25	10 50	5 00	10 10	5 25
Extra Western.	5 10	6 10	5 00	6 10	5 10	6 10	5 00	6 10	5 10
Extra Genesee.	7 35	10 25	7 25	9 50	7 35	10 25	7 25	9 50	7 35
Superfine Western.	4 85	6 50	4 75	5 85	4 85	6 50	4 75	5 85	4 85
Rye Flour.	4 25	5 35	4 40	5 50	4 25	5 35	4 40	5 50	4 25
CORN-MEAL.	3 15	3 75	2 75	3 80	3 15	3 75	2 75	3 80	3 15
WHEAT—All kinds of White.	1 65	1 85	1 50	1 80	1 65	1 85	1 50	1 80	1 65
All kinds of Red and Amber.	1 20	1 65	1 15	1 60	1 20	1 65	1 15	1 60	1 20
CORN—Yellow.	58	60	58	60	58	60	58	60	58
Mixed.	47	58	47	58	47	58	47	58	47
OATS—Western.	43	53	41	52	43	53	41	52	43
State.	45	53	43	52	45	53	43	52	45
RYE.	75	82	88	90	75	82	88	90	75
BARLEY.	60	70	65	75	60	70	65	75	60
HAY—Bale, 100 lbs.	60	70	65	75	60	70	65	75	60
Straw, 100 lbs.	20	25	20	25	20	25	20	25	20
COTTON—Middling, 50 lb.	20 1/2	20	19 1/2	20	20 1/2	20	19 1/2	20	20 1/2
HOPS—Crop of 1872, 50 lb.	35	50	35	50	35	50	35	50	35
FATHERS—Live Geese, 50 lb.	65	85	65	85	65	85	65	85	65
SEED—Clover, 50 lb.	8 1/2	9	8 1/2	9	8 1/2	9	8 1/2	9	8 1/2
Timothy, 50 bushel.	4 25	4 40	4 00	4 15	4 25	4 40	4 00	4 15	4 25
Flax, 50 bushel.	2 40	2 60	2 50	2 10	2 40	2 60	2 50	2 10	2 40
GRAIN—Red & Grocery 50 lb.	6 1/2	9 1/2	6 1/2	9 1/2	6 1/2	9 1/2	6 1/2	9 1/2	6 1/2
MOLASSES, Cuba, 50 gal.	18	34	18	40	18	34	18	40	18
New Orleans, 50 gal.	60	85	60	85	60	85	60	85	60
COFFEE—Rio (Gold).	—	—	19 1/2	20 1/2	—	—	19 1/2	20 1/2	—
Tobacco, Kentucky, &c., 50 lb.	7	15	7	15	7	15	7	15	7
Seed, 50 lb.	5 1/2	7 1/2	5 1/2	7 1/2	5 1/2	7 1/2	5 1/2	7 1/2	5 1/2
Wool—Domestic Fleece, 50 lb.	36	45	36	45	36	45	36	45	36
Domestic, pulled, 50 lb.	30	35	30	35	30	35	30	35	30
California, clip, 50 lb.	16	38	16	38	16	38	16	38	16
TALLOW, 50 lb.	7 1/2	8 1/2	7 1/2	8 1/2	7 1/2	8 1/2	7 1/2	8 1/2	7 1/2
Oil—Coke, 50 lb.	35	40	36	40	35	40	36	40	35
Pork—Mess, 50 barrel.	17 50	17 75	—	18 00	17 50	17 75	—	18 00	17 50
Turkey, 50 lb.	7 50	10 50	8 25	10 75	7 50	10 50	8 25	10 75	7 50
BEEF—Plain mess, 50 lb.	7 50	10 50	8 25	10 75	7 50	10 50	8 25	10 75	7 50
Lard, in tins, 50 lb.	18	20	18	20	18	20	18	20	18
BUTTER—State, new 50 lb.	15	25	14	25	15	25	14	25	15
Western, 50 lb.	15	25	14	25	15	25	14	25	15
CHEESE—50 lb.	6	13 1/2	8	13 1/2	6	13 1/2	8	13 1/2	6
WATERMELONS, 50 lb.	—	—	8	10	—	—	8	10	—
MUSKELONS, 50 lb.	—	—	2 50	3 00	—	—	2 50	3 00	—
SQUASH, 50 lb.	—	—	7 1/2	1 00	—	—	7 1/2	1 00	—
BEANS—50 bushel.	1 50	2 80	1 50	3 00	1 50	2 80	1 50	3 00	1 50
PEAS—Canada, free, 50 bu.	1 00	1 10	92 1/2	1 00	1 00	1 10	92 1/2	1 00	1 00
EGGS—Fresh, 50 dozen.	10	23	16	21	10	23	16	21	10
POULTRY—Fowls.	11	18	15	20	11	18	15	20	11
Geese, 50 pair.	12	18	15	20	12	18	15	20	12
Ducks, 50 pair.	15	25	16	25	15	25	16	25	15
Pigeons, 50 doz.	—	—	1 75	2 50	—	—	1 75	2 50	—
Woodcock, 50 pair.	—	—	1 00	1 12	—	—	1 00	1 12	—
TURNIPS—per bushel.	2	3	2	3	2	3	2	3	2
CABBAGES—50 lb.	5 00	8 00	5 00	9 00	5 00	8 00	5 00	9 00	5 00
ONIONS—50 lb.	6 50	1 50	6 00	7 00	6 50	1 50	6 00	7 00	6 50
" 100 bunches.	—	—	4 70	6 00	—	—	4 70	6 00	—
APPLES—50 barrel.	2 50	7 00	2 25	2 75	2 50	7 00	2 25	2 75	2 50
POTATOES—50 bushel.	2 50	8 00	2 25	2 75	2 50	8 00	2 25	2 75	2 50
SWEET POTATOES—50 bushel.	—	—	—	—	—	—	—	—	—
CARROTS—50 bunches.	3	9 1/2	3 50	4 00	3	9 1/2	3 50	4 00	3
BEANS—50 lb.	—	—	2 75	4 00	—	—	2 75	4 00	—
PEACHES, 50 crate.	3 50	6 00	2 00	4 50	3 50	6 00	2 00	4 50	3 50
CRANBERRIES—50 lb.	—	—	—	—	—	—	—	—	—
KALE, 50 lb.	75	1 00	—	—	75	1 00	—	—	75
CHERRIES, 50 lb.	6	6 1/2	—	—	6	6 1/2	—	—	6
GOOSEBERRIES, 50 lb.	4 00	6 00	2 25	2 75	4 00	6 00	2 25	2 75	4 00
STRAWBERRIES—50 quart.	25	35	—	—	25	35	—	—	25
CURRENTS, 50 lb.	8	18	—	—	8	18	—	—	8
RASPBERRIES, 50 quart.	15	60	—	—	15	60	—	—	15
BLACKBERRIES, 50 quart.	12	20	10	28	12	20	10	28	12
" 50 bushel.	—	—	2 50	3 00	—	—	2 50	3 00	—
PEARS, 50 bushel.	—	—	1 45	1 50	—	—	1 45	1 50	—
WHORTLEBERRIES, 50 bushel.	—	—	1 50	1 25	—	—	1 50	1 25	—
LETTUCE, 50 bushel.	—	—	25	75	—	—	25	75	—
GREEN CORN, 50 lb.	—	—	25	75	—	—	25	75	—
LIMA BEANS, 50 bushel.	—	—	1 25	1 50	—	—	1 25	1 50	—
MAIZE SEED, 50 lb.	—	—	5	8	—	—	5	8	—
MAPLE SYRUP, 50 gallon.	—	—	1 00	1 35	—	—	1 00	1 35	—

Gold has been as low as 115, and as high as 116 1/2—closing August 13th at 115 1/2, as against 115

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The Orange Judd Company.

When the *Agriculturist* first came into the possession of Mr. Judd, nearly thirty years ago, one person could act as cashier, book-keeper and subscription clerk, write all the wrappers, and fold and mail the paper, and have a plenty of time left for odd jobs besides. From this small beginning the paper grew under Mr. Judd's sole supervision until it had attained a success not before reached by any agricultural journal in this or any other country. When the publication of agricultural and horticultural books was added to that of the paper, the business became more than one man could direct, and Mr. L. A. Chase, and shortly after Mr. Samuel Barham, Jr., united with Mr. Judd to form the firm of Orange Judd & Co. Later the firm assumed the publication of a weekly paper, *Heath and Home*, and this, with other business projects calling for still more heads and hands, has led to a further enlargement of the firm. Mr. C. C. North, well known as a successful merchant in New York City, and Dr. A. P. Miller, of Ohio, formerly the publisher of the *Toledo Blade*, have joined the original members, and the firm now stands as the Orange Judd Company. As is frequently done by firms with several members, these gentlemen have formed a corporation under the laws of the State, this being a course which, in many ways, facilitates business operations. The change in name from Orange Judd & Company to the Orange Judd Company is so slight that it will cause our friends but little inconvenience. In the new company Orange Judd is President, C. C. North 1st Vice President, Dr. A. P. Miller 2d Vice President, L. A. Chase Treasurer, and Samuel Barham, Jr., Secretary. Probably the question that will occur to the long-time readers of the *Agriculturist* will be, "How will this affect our paper?" We can reply, if at all only for the better. The new members are at one with the older ones in the desire that the *Agriculturist* shall maintain the high position it has so long held, and all are in favor of any improvement that will make the paper more valuable to its increasing hosts of readers. The editorial staff of the *Agriculturist* remains the same as for several years past, and they are ever actuated by the desire to make each volume better than its predecessor.—Ed.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd & Co.** Post-Office Money Orders, for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On *American Agriculturist*, 3 cents a quarter, in advance; on *Heath and Home*, 5 cents per quarter. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage must be sent to this office for prepayment here. Also 20 cents for delivery of *Heath and Home* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$8; making a club of 20 at \$1 each; and so of the other club rates.

Our Fair List will be found upon pages 353-355, and we believe it to be the most complete yet issued. Such a list involves much labor, and is made up in the first place from announcements sent to us by the officers of the agricultural societies, and, secondly, by copying from the agricultural papers in various parts of the country. We find these often differing as to dates and even localities, and in such cases we have consulted the paper nearest to the place holding the fairs as most

likely to be correct. While we thank the secretaries and other officers for their more than usual promptness in forwarding circulars, notes, etc., we venture to suggest that they always make it a point to name the State in which the fair is to be held. We have several very handsomely printed fair lists in which town and county are given, but no word in the whole that affords the slightest clue to the State.

The Farmers' Movement is now attracting much attention, and papers of all kinds are discussing the matter. All that we consider it necessary to say upon the subject at present will be found in an article on page 355.

Rifle Practice.—An extensive and well-arranged rifle range has been established on Long Island, at which frequent shooting matches take place. In reference to it we find the following in the *New York Tribune*: "Orange Judd of the *American Agriculturist* has sent to the Secretary of the National Rifle Association a prize to be awarded at a match to take place at the Creedmoor Range, and to be competed for by members of the press. With it he sends a letter calling attention to the skill in rifle-shooting common in Germany, which he thinks had much influence in deciding the Franco-Prussian war. He thinks, also, that one secret of the power of the Confederate army was its excellent marksmanship. He holds, therefore, that Americans can not do better than devote a good deal of time to target practice, while he hopes that all 'sporting' tendencies will be kept out of any efforts in that direction. With a view to help in this cause he offers the prize alluded to."

SUNDRY HUMBUGS.—Every month we are in receipt of letters of inquiry which we are unable to answer at once. We have a number of such this month. Physicians are often much puzzled while a disease is "incubating," as they term it, and can only wait until some positive symptoms manifest themselves. It is so with many humbug cases; while we feel morally certain that they are humbugs we have not sufficient evidence to allow us to say so. Such cases must incubate—in other words we "let them set" knowing that in due time the foul bird will show itself. We mention this for the benefit of those who are impatient because their queries are unanswered. While we consider it a duty to our readers to expose unmistakable humbugs, we are on the other hand under obligation not to class an innocent person with humbugs and swindlers. For the reason that a sense of justice prompts us to act with caution, it is likely many who merit a place in this column fail to attain the distinction. It has very seldom happened that one has been named here who did not deserve to be, and when this has happened we have at once made the fullest reparation. Some good people quite misapprehend our motives in publishing this monthly exposition, in illustration of which we will mention what occurred recently. A gentleman of good standing in New York City, and one who has held important positions, called on us a few days ago to ask us if we could not "let up" on a certain dealer in quack medicines, with the remark that the person in question was a "real clever fellow," and that we ought not to be so hard on him. Our reply was that we had not the slightest desire to injure the quack-medicine man, our only object was to prevent our readers, farmers, and others all over the country, from wasting their money on worthless trash. This seemed to put the matter in a new light, and our friend left evidently convinced that the question had two sides.

LEGISLATION IS ASKED FOR

now and then by some indignant person who feels insulted at the receipt of a swindling circular through the mail, and we are asked to advocate the passage of laws to suppress humbuggery. There are a plenty of laws. The postal law forbids the sending of a large class of circulars, etc., through the mail, and the laws against obtaining money under false pretences are sufficient to cover most cases, even the medical humbugs. The trouble is that those who have been cheated are generally so ashamed of their folly that they will not prosecute under the present laws nor would they under any others. If parents would teach their children that any one who offers goods for one dollar that are worth five or ten dollars, is either a fool or a thief, the case would be much simplified, but as parents themselves are quite likely to be tempted by impossibly good bargains, we shall have to wait until the world grows wiser before the field of operation for swindlers is sensibly diminished. We are cautioned to avoid

"THE APPEARANCE OF EVIL"

as well as evil itself. There are some who advertise their wares in the same style and often with the same phraseology that are adopted by the regular swindlers. This is the case with a concern in Providence, R. I., about which we have inquiries. The suspicious thing

about their circular is that only the P. O. address is given. If these watch dealers would avoid suspicion, they should modify the form and manner of their circulars. . . . Those who ask about Geneva and Parisian \$4 watches will find them noted in last month's column.

BOGUS ADVERTISING AGENCIES

are endeavoring to advertise bogus Prize Distributions in the Western papers. We should think that all respectable papers would refuse to advertise Gift Concerts and Prize Distributions under any circumstances. If they publish these things they become accessories, and if they should not get pay for their advertising it would be a legitimate result.

MONEY CAN BE MADE

very easily in various ways. A man in New York advertises to send a "valuable package of goods" upon the receipt of a 6-cent stamp. Here is a chance to make money—for the man who gets the stamps. . . . Those who do not like this way can send to Newark, N. J., and get the "Money-Makers' Monitor." It is a "secret art," but the secret costs only \$1, and \$300 invested will bring in \$3,000, and so on. One of ordinary shrewdness would ask himself before investing, "Why don't this fellow make use of his secret art and get rich himself, instead of publishing pamphlets to persuade others to get rich out of his 'secret'?" But people who are humbugged are not of the kind who think.

BULLYING AND INTIMIDATION.

The man in the fable who, finding tufts of grass to fail, tried stones, finds his counterpart in the humbug dealers who, when blandishments will not work, do a little threatening. A counterfeit money chap, under his several names, sends out circulars offering his "quer," in which he says, "Should you betray me, I will find means to be avenged in a way perhaps you do not dream of." From the number of these circulars sent us, we think the author will have so much avenging to do that but little time will be left him in which to print counterfeit notes. . . . A lady in Massachusetts writes us that a peddler of Clickener's Pills left five boxes at her house several months ago, and then came along and demanded pay, and states that he did the same thing to a neighbor with whose servant he left some pills. When the men are at work at a distance from home, farmers' wives and families are subject to annoyances of this kind. A good dog is handy to have in such cases. We instruct our own people to ring the alarm-bell and go for the pistol whenever they are subjected to any unpleasant visitor. The sound of a bell has a moving effect. . . . In the June "Humbugs" we said: "A citizen of Rahway, N. J., is in trouble. He engaged in the sale of a quack medicine, but found that the people there read the *Agriculturist* and would not buy. He thinks we have damaged his sales to the amount of one hundred dollars and asks us to make good his loss. It consoles us, when we are reminded of this individual's loss, to think of what the people of Rahway have gained." We mentioned neither the name of the person nor of the medicine, but "citizen of Rahway" is desirous of more notice, which we will give him by publishing, without alteration, a letter from him:

RAHWAY NEWJERSEY }
June the 30th 1873 }

My Dear Sirs.

It is just what I am giten at. You could me a Liar and a thief I want you to make that good as I do not care about Medician I sell a good Deal of Mothers Noble Syrup that speaks for itself.

N B

I want You to Pay for the damadge one hundread Dollars send me a check for to Rahway Bank or you will never hear the last of it.

P S

Doctor E. P. Hnylar sayes he haves nothin too do with Orange Judd & Co But mind you I have something to Do with you an Co, you say there is not so many the kind Droppin off

the're is just as many as ever only som I Persume layes 4 ft Below where they will not cheat us honest folk hear yours with Truth

A D WOODRUFF.

Should this "citizen of Rahway" ever happen to get that "hundred dollars" he is after we advise him to spend it in going to an evening school.

This charming epistle naturally leads to the subject of

QUACK MEDICINE,

in which but few novelties appear. . . . We have before noticed the Parisian Flesh Producer, which is now being pushed vigorously. This starts out with the preposterous statement that it was "decided upon by all the medical skill of the conference"—"of the leading Physicians of France," and of course cures everything. But what is that to "Uncle Ben Jo's Bell Tongue Syrup?" which cures everything too, and wasn't discovered by

any physicians at all, but by dear old Uncle Ben Jo, away off in South America. Isn't there a picture of the dear old Uncle, and a picture of the plant, which is undoubtedly new, for no botanist ever saw anything like it; and isn't there a view of the place where Uncle "cured the sick man," and another picture of the gathering the Bell Tongueplant? Then the pamphlet is on the yellowest of "yaller" paper, and the recital of Uncle's sufferings "jest teching," and it can all be bought for 50 cents.

The Shah Horticulturally.—The polygamous Persian potentate has commemorated his visit to England by planting several "memorial trees." Now we happen to know how this royal tree-planting is done. A man digs the hole, another man brings the tree and places it therein, then his high mightiness puts his hand on the tree while other men fill in the earth—and behold the tree is planted by the king of kings. They went through this tom-foolery with the Prince of Wales at Central Park, when Albert Edward planted an English oak. In our collection of woods we have a section of the very oak "planted" by royalty; the tree planted by royal hands did not live, and another one was quietly substituted for the original, to which all good republicans can duly pay reverence.

Ogden Farm Catalogue of 1873 of Thorough-bred Jersey Cattle.—This catalogue deserves especial notice, not only on account of the fact that it offers thorough-bred animals, but for its fullness and the neatness of its mechanical execution. Not only are the pedigrees of the animals given in full, but there is a sheet of small portraits of them by the Albert-type Co. of Boston. These portraits, which are only two inches long by an inch and a quarter high, are so finely executed that they not only bear inspection but are actually improved by the use of a magnifying glass. The catalogues may be had on application to Geo. E. Waring, Jr., Newport, R. I., and W. Barg. Casey, Grove Farm, Mt. Vernon, Ill.

The Power and Influence of the Agricultural Press is the title of a lecture given before the Maine Board of Agriculture by Samuel L. Boardman, editor of the Maine Farmer. Although the lecturer takes a limited scope, he tells his hearers much sound sense, and we hope it will be productive of good.

Vick's Floral Guide.—Mr. Vick in his second and third numbers of his Floral Guide gives besides some useful horticultural information, a lot of pleasant gossip about his trip to Europe. Mr. Vick was formerly an editor, and he has not forgotten how to "sling ink" with ease and grace, and if need be with a considerable vim. He pays his respects to the Post-Office Department, and shows up its incomprehensible "rulings" in their proper light.

Science Gossip.—G. P. Putnam's Sons issue a reprint of Hurdwick's Science Gossip. This is one of the best journals devoted to natural science with which we are acquainted, and commends itself to all who are studying or are interested in any branch of natural history. Price 20 cents, monthly.

The Bushberg Vineyards.—We have received the catalogue of Isidor Bush & Son, of Bushberg, Mo., which aside from giving an excellent selection of vines is deserving of notice for the manner in which the descriptions are condensed. Thus, a large black dot placed against a variety indicates that it is a large black grape; a small black grape is designated by a smaller dot. White varieties are marked by circles with a white center, while red grapes have a shaded circle placed against them. The season, uses, etc., are indicated by letters in such a manner that allows the catalogue to convey a great deal of descriptive information in a very small space. The *Cynthiana*, which last month was spelled in an advertisement "Cynthiani," still maintains its excellent reputation. Messrs. Bush & Son regard it as the best grape for red wine. We learn that the prospect for fruit in the Missouri vineyards is not encouraging, not having attacked the fruit.

The Death of Abel C. Collins.—Mr. Collins, who for some time has furnished our Live-stock Market Reports, and who was Live-stock editor of the New York Tribune, died on July 24th, at the age of 45. Mr. C. was born in Rhode Island, and was for several years engaged in the produce commission business in New York. He was a member of the Society of Friends and one of their ministers, and his funeral was largely attended by members of that denomination, by whom, as well as by others, he was held in high esteem.

See Pages 353, 354, and 355 for Fair List and items.

Plant for Name.—"A. H. H.," Middagh, Pa.—The plant sent is *Trifolium pratense*, commonly called Rabbit's-foot or Pussy-clover. It grows on sterile soils, and is of no especial value.

"Le Cultivateur de la Région Lyonnaise."—Lyons, France, is a wide-awake horticultural center. It sends out the best roses, the newest double pelargoniums, and other novelties, and has a most active horticultural society. Now it presents us a journal with the title given above, of which two numbers are at hand. It is published under the auspices of the local horticultural and viticultural societies, and we doubt not that it will prove to be one of our most acceptable exchanges.

A Great Sale of Plants.—Mr. M. J. Linden, one of the most celebrated horticulturists of Europe, has been keeping up an establishment at Brussels and another at Gand. Wishing to concentrate his business at Gand, or Ghent (Belgium), he will sell early this month 100,000 plants, comprising the rarest varieties.

A Large Sassafras-Tree.—A gentleman from Ohio informs us that there is on the farm of Geo. W. King at Painesville, O., a Sassafras-tree which one foot from the ground measures 10 feet 4 inches in circumference, and four feet from the ground 8 feet 10 inches. It is 120 feet high, presenting a clean trunk of 50 feet to the lower branches.

The Colorado Potato-Beetle is troubling the farmers of Pennsylvania and Maryland. Its progress eastward is unpleasantly certain. See article on Paris-green on another page.

Decalcomanie.—"Constant Reader."

This is a name given to a French process of ornamenting glass-ware, porcelain, etc. Designs of birds, flowers, and the like are printed for the purpose on paper in bright colors. A varnish is applied to the vessel to be decorated, and the print pressed upon the varnished surface. The paper is removed after the varnish is dry, and the color is left adhering to the varnish. It is a trivial amusement, for which the materials are sold at the color shops.

English Walnut.—Mrs. M. Knabe, Cumberland Co., Pa. It is not necessary to graft your walnut trees to make them bear. Grafting on this tree is a difficult operation, and is only used when it is desired to propagate particular varieties. Your trees are probably not old enough to bear, or it may be that your climate is a little too severe to allow them to fruit. Let them alone and wait.

Apple-Blight.—"M. B.," Benton, Ohio. The blight is not usually discovered until the mischief is done. The best treatment is to cut away all affected branches down to sound wood as soon as the blight is discovered.

Life Insurance at the West.—A recent visit in Milwaukee gave an opportunity of making a pleasant acquaintance with the Northwestern Mutual Life Insurance Co., and noting their method of doing business. Three very desirable characteristics, energy, economy, and safety, were shown in a marked degree. During fourteen years of its work it has pushed up to seventh in rank in amount of assets and number of policies, a sufficient proof of energetic management. Its risks are very largely among the agricultural classes, and its rate of mortality for ten years past has been lower than that of any other leading company. Its funds are invested on bond and mortgage at the high rates of interest current at the West, and secured by three times the value of the amount loaned; thus in effect allowing low rates of insurance to be safely given by securing large profits to the policy-holders. Its ample reserve fund guarantees safety to the assured, and being a purely mutual company all special advantages and profits enure to the benefit of the assured.

Go to the Fairs, as many as you can. The list on pages 353-355 will tell you when and where they are to be held.

What to Do with Sows that will not Breed.—A correspondent at Tracy City, Tenn., has three fine Poland-China sows in good condition, 13 months old, that will not breed. The boar is, with other sows, a sure breeder. He asks what he shall do.—If they are choice sows, wait. They are still young. We have two sows that did not breed till past two years old, and they have since been the best breeders we have. There is nothing for it but patience or the pork barrel. Let them have plenty of exercise and comparatively nutritious food, such as grass, clover, and bran. Give all the salt, ashes sulphur, charcoal, etc., they will eat.

Engines in Cheese Factories.—"E. L. B.," Springfield, O. No engine is required in a cheese factory. A boiler to produce steam to heat the curd and cleanse the vats and apparatus is all that is required, and any boiler that is steam-tight and will bear a few pounds pressure per square inch will answer the purpose.

Corn and Feed Mill.—"W. H. G.," Finn Co., Iowa. The best mill for grinding feed or corn-meal is a burr-stone mill mounted as described in the *Agriculturist* of August, 1872. To grind twenty bushels per hour, twenty horse-power will be needed. The address of the manufacturer mentioned is not known to us. Any of the dealers of agricultural implements mentioned in our advertising columns can supply such a mill.

Management of Manure.—"P. W.," Toledo, Ohio. When horse manure has been allowed to mold, or become covered with a light white fungus, it is in the condition known as fire-fanged, and has parted with its chiefly valuable quality and can not be restored. It is worth little more than dry straw. Fresh manure, if kept under cover, should be turned whenever it has become heated so that steam arises from it. If outside, it should be laid up in a broad pile, with dishing top, so as to catch the rain that falls. If plenty of rain falls while the pile is heaping, so that it be kept moist, it will not become fire-fanged; if not, it should be turned once or twice. Sods may be rotted for potting purposes by piling them in a heap and leaving them during the summer. Animal manure is not the best for lawns, on account of the weed seeds contained in it. Guano or blood manure, at the rate of 250 pounds per acre, with a bushel of plaster each spring, is the best dressing; wood ashes also are an excellent fertilizer.

Winter Feeding of Steers.—"H. L. S.," Lee Co., Ill., writes that eighty head of steers were fed in his county last winter in the open field, without the shelter of trees or a tight fence even, on whole corn in troughs and hay in racks, and came out well and the best fat steers in the neighborhood. Nevertheless, such management is not to be commended.

Compost for Corn.—"W. R. Y.," Myersville, Md., sends the following mixture for a compost for manuring corn—viz.: 5 bush. hen droppings, 2 bush. bone-dust, 10 bush. of dry peat muck, $\frac{1}{2}$ bush. salt, $1\frac{1}{2}$ bush. plaster, and 5 pails of chamber-lye. This will be found a very valuable fertilizer for late-planted corn, or for corn planted for fodder.—Although "W. R. Y." complains in his letter of the "exceedingly indefinite" directions sometimes given by others, he falls into the same error himself in neglecting to say how much of his mixture he uses in each hill of corn. In default of such direction, we suggest that one handful of the mixture should be used in each hill, and mingled with the soil so as not to come in contact with the seed.

Cost of Iron and Lead Pipe.—"A. A. H.," Half or three-quarter-inch iron pipe will answer to conduct a stream of water. The price of iron pipe is much less than lead pipe or tin-lined. Lead pipe, half-inch diameter, is about 12 cents a pound, and weighs 11 to 16 pounds per rod, according to its strength.

Steaming Food for Cattle.—"B. H. H.," Grantville, Mass. Steamed food will not sicken cattle if properly fed. Any food will sicken them if fed in excess. They should never be fed at any time more than they will eat up clean, and no occasional change of food is an agreeable variety which tends to maintain their appetite. A feed of long hay or straw is always advisable between meals of steamed food—at noon, for instance.

Indigestion in a Horse.—"Subscriber," Saratoga, N. Y. When the grain fed to a horse passes from him undigested and he in consequence becomes thin and hide-boned and rough and staring-coated, it would be advisable to give him a change of food. Carrots or boiled potatoes fed nearly cold with a handful of salt sprinkled on them, scalded wheat-bran, scalded oats with a handful of linseed meal added, and cut hay or oat straw might be usefully given. In addition a teaspoonful of finely powdered copperas and another, heaped, of ground gleeber may be given daily in the feed.

Harvest Home.—The Farmers' Co-operative Union, of Jamaica, L. I., at a recent meeting passed a resolution appointing a committee "to inquire into the probable success, the most desirable and accessible rendezvous, and the cost of such a picnic as would be acceptable to the farmers and their friends," to take the place of the old-fashioned harvest home which has been held year

by year on the other side of the Atlantic from time immemorial until now. From the most ancient times, farmers have signalized the close of their season of labor and the safe gathering of their crop by a day of recreation and mutual congratulation. The present is an age when labor is more concentrated than ever; the head works with the hand, and becomes equally wearied when its labor is done; and as a rule farmers and their families have but few, if any, public gatherings for entertainment and recreation. The action of the Long Island farmers is to be commended, and may well be imitated elsewhere.

Texas or Where?—"L. A. B.," Natchez, Miss. There is a vast tract of most excellent land in Northern Texas and Southern Kansas which would be in the locality you desire. The method of reaching those lands would be to start from Topeka, where you can go West or South or North. The railroads furnish tickets the cost of which is returned to purchasers of their lands.

Burning Lime.—"E. O. N.," Grundy Co., Tenn., will find an article with illustrations and descriptions of kilns for burning lime in the *Agriculturist* of September, 1871.

Thick or Thin Sowing.—"T. G.," Granville Co., N. C. This is a question which will probably remain undecided while men have different opinions of things. Facts are not conclusive in regard to it and never can be because the conditions under which they occur are so variable. Each farmer should experiment for himself. No more general rule can be given than this: on rich land the seeding may be moderately thin, say $1\frac{1}{2}$ bushels wheat and $2\frac{1}{2}$ of oats; on poor land, on which grain will not tiller much, the seeding may be from 2 to $2\frac{1}{2}$ bushels wheat and 3 to 4 of oats. We have raised equally heavy crops with a seeding of 1 bushel and 3 bushels of wheat per acre on good soil.

Big Head.—"J. Q. G.," Gallatin Co., Ill. This disease, which attacks the jaws of the horse and causes a large and hard swelling or tumor which often prevents the closing of the teeth, and which is generally known as "big head," and osteo porosis or osteo sarcoma by veterinary surgeons, is incurable without such an operation as would render the horse entirely unserviceable. The diseased jaw or parts of it must be cut away. It may be therefore accepted as practically incurable.

Lime with Wheat.—"J. J. B.," There is no better way to apply lime than with the seed in the fall. It may then be harrowed in directly with the rye or wheat. 25 to 40 bushels per acre of finely slacked lime would be a good dressing. The finer it is the more effective it will be and the less quantity may be used.

Worms in a Horse.—"Subscriber." The best medicine for a horse troubled with worms is tartar emetic. One dram given with half a dram of ginger made into a ball with linseed meal and hot water should be given each morning for a week, then a pint of linseed oil as a physic. After a week's rest this may be repeated; after which the horse should have a dram of sulphate of iron (copperas) powdered given daily in the feed. The most unmistakable symptom of worms next to their appearance in the dung is the rubbing of the tail consequent upon irritation of the large bowel and anus, and the appearance of dry scaly matter (dry mucus) beneath the tail. An injection of one pint of linseed oil with 2 drams of spirits of turpentine will bring away the species of worm which lodges in the rectum. It may be given in conjunction with the above medicine weekly.

Hen Manure on a Garden.—"W. J. S.," Hen manure is almost exactly identical in quality and effect with guano, and may be used in the same manner. Except on very rich soils it should not be used in larger quantities than 250 or 300 pounds per acre, as it would only stimulate a strong growth which could not be kept up in vigor. As a change of manure on rich garden soil which is heavily cropped it may be used to advantage. The best way to preserve it is to keep it dry or mix it with earth. Its value is free from foreign matter and dry is \$50 a ton.

Purifying Milk.—"J. H. McHenry," Baltimore Co., Md. writes us that wood charcoal is an excellent absorbent of the disagreeable flavor of garlic in milk. He uses it every spring by dropping a piece 3 or 4 inches long and 2 inches thick into each pan of milk or into the picher to which milk for table use may be kept.

Liquid Manure.—"Dr. C. F. F." Liquid manures are most conveniently and effectively applied to grass, clover, corn, or other crops grown for fodder. After the cutting, especially in dry weather, the application of

a fertilizer in this shape causes a most abundant and rapid growth. Of such crops as much as 30 tons per acre have been cut in one season by the use of liquid manuring. All garden crops are also especially improved by it. But few field crops admit of the passage of the necessary vehicle over them. The time to apply the manure is from the commencement of the growing season until its close and in the afternoon or as near sundown as possible.

Poultry Matters.—"H. B.," Green Bay, Wis. The best hens for the farmer, taking everything into consideration, are the light Brahmas. The nests are better placed upon the ground, or upon a bench not more than a foot above it. The best food for hens is corn occasionally changed for wheat.

Methods of Feeding Meal.—"R. A. Fisher." The plan of cutting the fodder and mixing the meal fed to cows with it and feeding it moistened is preferable in our opinion to any other method. By feeding meal dry or made into dough some portion of it will pass into the fourth stomach and escape only partially digested. The plan of mixing the meal with water and making a drink is preferable to feeding it dry or in a doughy state. The meal then passes, as it does when mixed with the feed, into the rumen or paunch whence it is passed, after undergoing rumination, into the reticulum or second stomach in a condition fitted for perfect digestion in the third and fourth stomachs and the bowels.

Weeds on Rich Soil.—"I find," writes a Penn. farmer, "that the richer I get my land the more trouble I have in keeping the weeds down."—Just so. Manure has the same effect on a weed plant as it has on a corn plant. It will make either of them grow more luxuriantly. But what of it? We think it is much easier to keep rich land clean than poor land; but you want it clean to start with. We do not like the phrase "keeping the weeds down." Better cut them up, and kill them root and branch. It is a work of years to make a foul farm clean, but it can be done—and must be done before we can get full returns for our labor.

Cure for Founder.—"R. C. F.," Los Angeles Co., Cal., sends us a cure for founder in horses, which, he says, he has never known to fail in many years of trial. It is as follows. As soon as the horse is found to be stiff swab the legs and feet with hot water so hot that the hand can not bear to touch it, but it must not be so hot as to scald. After a short time the legs should be rubbed dry and the horse gently exercised.

Agricultural Laborers' Union.—Mr. Joseph Arch, the president of the Agricultural Laborers' Union of England, an association which has grown to large proportions within a year, is expected to visit this country. His object, we are informed, is to examine the prospects presented for the successful emigration of farm laborers hither. Skilled farm laborers or competent tenants are in great demand here; and Mr. Arch's mission will be or ought to be looked upon very favorably by those agricultural associations whose members are in pressing need of reliable and steady farm help.

Preserving Manure with Earth.—"W. C. C.," Clermont Co., Ohio. The manure from a hen-roost if kept dry will retain all its valuable properties. If moistened it will decompose; and if when mixed with earth it is found to give off pungent vapors of ammonia it should be sprinkled with a solution of copperas or diluted sulphuric acid. It should be kept as dry as possible until wanted for use; but if it should absorb moisture from the atmosphere sufficient to start the ammoniacal vapors they may be caught and fixed by the above mentioned applications.

Interested in Ducks.—"F. A. C.," who is interested in ducks to the extent of asking twelve distinct questions, with "just one more" added to make a baker's dozen, and who having purchased Rouen ducks, as he thought, has become a victim to ruined hopes, and finds his ducks far from Rouen, is informed that a Rouen duck if pure-bred should have no white feathers, and the drake should have none either except a white ring around the neck not quite meeting at the back, and a fine white streak across the wings. The legs should be orange with a little brown but not black. The young drakes may be distinguished as soon as they are fully feathered. The general color of the duck is brownish with dark pencillings, and the drake has a claret-colored breast, is gray and green on the back, and has a broad ribbon of rich purple edged with white on the wings. If pure-bred ducks are an object it would be more satisfactory to pay \$8 for a pair of pure ones, than pay less and have a progeny of all sorts and colors. Young ducks eat enormously, and if well fed will grow fast, and the Rouens weigh at maturity 12 to 13 pounds; the pair.

A Plan for Irrigating.—"A. H.," Saginaw, Mich. It would not pay to go to the expense of pumping water into tanks and distributing it by means of pipe buried in the ground to which hose may be attached. But if the water could be distributed in furrows as it is elevated from a pond or stream, it would certainly pay thus to water grass land. The produce of grass may be doubled, and more, by irrigation. Probably one of the best wind-engines is that made by the U. S. Wind-Engine Co., Batavia, Ill., which is made efficiently large to drive a grist mill.

Scales of Points for Horses.—"H. E. H.," Howell Co., Mo. There are no scales of points for judging horses as are in use by judges of cattle at agricultural fairs. The chief or only point recognized in a trotter is speed; with roadsters or farm horses, the general appearance, condition, and style, which to the eye of a horseman amount really to the same thing as a scale of points, constitute the standard of excellence. The scales of points of cattle generally used are not unanimously accepted by breeders, by any means, although they are content to be bound by them in exhibitions.

Roots for Hogs.—"G. H.," San Jose, New Mexico. Jerusalem Artichokes, (*Helianthus tuberosus*), and the chufa or earth almond, (*Cyperus esculentus*) have both been recommended as permanent root crops for hogs. The seed (tubers) of these can be procured at the seed stores, though the latter, not so much used, is not so generally kept. The culture of the Artichoke is similar to that of potatoes.

Pasturing or Plowing Under Clover.—"G. W. P.," Union Co., Ill. Whether or not it is best to plow under or pasture clover depends on the condition of the soil. In the district in question it would probably pay the best to pasture the crop while there is a full bite, and then leave the clover to grow and seed before plowing it in for a following wheat or corn crop. It is evident that the prairie farms would be benefited by more frequent seedings of clover, if only to smother out some of the prevalent weeds which by and by will be found to be a pest to be got rid of by troublesome cultivation only.

Plowing Orchards.—"M. B.," Clinton, La. In plowing an orchard short single-trees should be used, and the trace-chains and the ends of the single-trees should be wrapped with straw or hay ropes, lest by accident the trees should be barked. But a plowman who persists in skinning the trees should be kept out of the orchard.

Manure Tanks.—"J. M. F.," Darien, Wis. A tank on the plan described in the *Agriculturist* of May, 1873, for liquid manure may be used on any scale desired. One 10x14 and 8 feet deep would be amply large for 50 head of stock if it could be emptied when necessary and the rain from the roofs was conducted into it. In this case a method of using the liquid would have to be in regular use. Stone may be used instead of plank for the lining of the tank. The manure need not be piled in the tank, but above and around it so that the drainage can be saved. If plenty of dry peat is used as an absorbent, there is no need for a tank unless the liquid manure is an object.

How to Apply Guano.—"T. G.," Greenville Co., N. C. The better way to apply guano to tobacco plants or to any crop grown in hills or drills is as you judge, by scattering it around the plant after planting rather than putting it in the hole in which the plant is set. In the first case the fertilizer is carried in a diluted state to the roots by the first rain, while in the latter case the fibers of the young roots may receive injury by too close contact with the undiluted guano. No plant or seed should come in direct contact with so pungent a fertilizer as guano.

Commencing Farming.—"J. W.," writes: "I came on October 1st into possession of a farm of 100 acres sandy and loamy soil which has been cleared of its timber and laid in pasture for 8 or 9 years. I want a paying crop the first season to help build a house. Shall I break up the land this fall, plow it deeply, sow oats and barley in the spring with roots and corn and timothy for stock-feeding? The land has been neglected."—Reply. In this case it would be unwise to look for any considerable returns the first year, or the second or third. The farm is as good a condition or better for bringing into a fair state of cultivation than the average of such farms, being all in grass. The sod will be a great help to it. Deep plowing, however, should be done cautiously: the

probability is that this farm does not need it and might be seriously injured by it. Also fall plowing is not often wisely done on sandy loams in sod. Barley is not a paying crop except on rich land and with the best management. Corn, oats, and potatoes are the crops which would meet the conditions of the case in the best manner. The oat ground may be plowed this fall as a saving of time only when the oats can be sown as early as the ground is in proper condition. The potato ground may be also plowed in the fall, but the corn ground had better be left until immediately before planting time in the spring when it should be plowed, harrowed, and planted, without any interval of delay. The oat stubble and potato ground will then be in good condition for wheat or rye and seeding to timothy with clover in the spring. Oats will follow the corn.

Barn-Yard Manure vs. Ammonia Salts.—An esteemed correspondent writes: "'Walks and Talks' says that Lawes and Gilbert got for nineteen years successively more wheat from 83 lbs. of nitrogen in ammonia salts than from 200 lbs. of nitrogen applied in 14 tons of farm-yard manure. This might be the case for one year, before the yard manure had time to decompose and form ammonia; but every cotton-grower who uses artificial manures knows that without vegetable matter in the soil concentrated fertilizers have no effect, but as a supplement to cow-peas, or clover, or farm-yard manure plowed in they pay more than 200 per cent on their cost, and when composted with muck and drilled in with the seed the yield is much larger than if sown broadcast."—All this may be true. But it does not touch the question. Lawes and Gilbert's experiments were continued nineteen years on the same land, wheat being grown every year. All that "'Walks and Talks'" quoted the experiment for was to show that when manure was plowed under on clay land it took many years to decompose, and that consequently it was desirable to decompose it as much as possible before plowing it into the soil. Read what he says. It will bear a careful perusal.

Lime for the Turnip-Flea.—"G. W. S.," Woburn, Mass. Lime slacked dry with water in which carbolic acid has been dissolved at the rate of one part of acid to 1,000 of water will drive off the little black fleas which eat the cabbage and turnip plants, and the lime alone will do it. There is no danger of injuring the plants. A simple dusting is all that is needed. The carbolic acid generally sold at the drug-stores is a liquid consisting of 20 parts of water to one of acid. This dilution should be considered in using the acid.

Sewage Pipes.—"M. J. W.," Warwick, Mass. The best barn drain-pipes are the glazed drain-tiles. Pine or hemlock logs will answer a good purpose, but the bore should be at least three or four inches, and the inlet should be protected by a grating. An occasional flushing during a rain by turning the spout from the roof into the pipe would be necessary to carry off any deposit where the fall is not great.

White Lupin and Lucern.—"J. G. C.," Knoxville, Tenn. The white lupin, although grown to some extent in Europe as a fodder and manuring crop, is not to be compared with red clover in value for either purpose. It may be grown as a fancy crop or in those very exceptional cases in which it is not desirable to sow clover for any reason. It is more valuable than buckwheat, but less so than peas. Lucern is a valuable forage crop which succeeds well on a rich, dry soil, and may be cut several times in a year. In California it is called Alfalfa also Chili clover, and is raised for forage and pasturing. On good soil it remains several years. The quantity of seed needed is 12 to 20 pounds per acre in drill or broadcast. Drill-sowing 9 inches apart is the best method, as the rows can be cultivated. The seed can be procured of any importer of seeds in New York.

Paint for Old Buildings.—"J. J.," New York. The best application for the sides of old wooden buildings is crude petroleum. If they are very rough and weather-worn, possibly a coat of lime-wash colored brown or drab by some of the cheap earth paints would be the cheapest and most serviceable. It should be renewed each year.

Buckwheat for Cows.—"Farmer," Celina, Ohio. Buckwheat, when ground and fed to cows with oat fodder, produces a greatly increased quantity of milk; but the butter in our experience is white and of a poor flavor. When ground with an equal quantity of corn-meal this effect is not so apparent.

White and Yellow Corn.—"G. S. N.," Moon, Pa. It is a disputed point whether white or yellow corn is the most valuable food. The opinion amongst millers and many farmers of your State is that yellow

corn is the "strongest food," but there is no evidence to support their opinion. If there is any difference it is not sufficient to overbalance the greater average yield of white corn; and in many places the white is preferred, both for its better yield and for its better feeding qualities. Here is a good chance for you and others to experiment and decide this question in a way that will be the most satisfactory.

Pleasant Words from Bermuda.—A subscriber writes: "My gardening operations on a small scale (the result of my own labor in the early mornings) have been quite successful. Outlay, \$50; net result, \$300. I had the first potatoes, cabbages, and melons, and got the highest prices for them. First melon cut on July 1st. Since then, I am the only person that has put melons in the market, which to present time have been sold at twelve cents the pound. I must say I have received a good many hints from the *Agriculturist*, particularly respecting thorough cultivation and saving manure about the house and land; and if our people would only read your paper with an intention to find something good in it, and act upon it, they could not fail to make Bermuda very prosperous."

Undigested Food.—"Inquirer" asks for a remedy for indigestion in a mare, whose food, in a great measure, passes through her whole. The trouble is that the mare bolts her food. Her grain should be ground and given with oat fodder, and some salt added. That will probably set the matter right.

Bran and Corn-Meal for Pigs.—"J. W. P.," writes: "I notice that in Lawes and Gilbert's experiments, as reported in 'Harris on the Pig,' better results were obtained when pigs were fed on a mixture of bran and corn-meal than when fed on corn-meal alone. Can you tell me whether the bran was coarse bran or fine shipstuf?"—It was coarse bran. The general results of the experiments do not lead us to place a very high value on bran as food for fattening pigs. It is well to let the pigs have all the bran they will eat, but not to compel them to eat it. That is to say, supply the pigs with all the corn they want, and let them have access to all the bran or shipstuf they will eat in addition. The more food you can get them to eat and digest the faster they will fatten. A change of food, or more variety, is for this reason very desirable and advantageous.

The Stinging Stable-Fly.—"W. L.," Northampton Co., Pa. The fly which troubles horses and cattle so much at this season in the stable and in the field is not the house-fly supposed to be identical with the European (*Musca domestica*), but a different species known as the *Stomoxys calcitrans*. The house-fly laps liquids with lips formed for that especial purpose; the stable-fly punctures the skin with its long and slender proboscis, and sucks the blood. This proboscis projects horizontally beyond its head. We have found but few resources against this pest. The most effective are to wash the stable floors with water occasionally, and to keep them clean; to have fresh pine saw-dust when possible for bedding, or at any rate, clean straw; to wash the animals' legs clean with carbolic soap, allowing it to dry upon the skin at the last, and to keep the stable doors closed, the windows protected with mosquito nets, and to have ventilating tubes from the stables through the barn, to keep up a current of fresh air. These flies breed in the manure, and clean barn-yards, free from manure in the summer, will help to keep them down. Not the least advantage of selling stock is their consequent immunity from this pest.

Remedy for Lampas.—"Bermuda" sends a method of curing lampas or swelling of the bars of the month in horses in use in the island of Bermuda, as follows: "The lampas is cut, holding under the horse's head a bucket in which is a handful or two of salt. The horse is allowed to slobber in the salt, which he will readily do, and the effect of the salt upon his month seems grateful to him. Another method is to apply a red-hot iron to the swelling, having gagged the horse and withdrawn the tongue, and then to rub the part with salt. The horse does not appear to suffer any pain from the operation, the gums and bars of the month not being very sensitive. Soft feed should be given for a few days afterwards."

"Hog Cheese" for Pigs.—A New Jersey correspondent writes: "I am feeding 70 spring pigs. I can buy 'hog cheese' (scraps) for 12 cents per pound, and corn at 50 to 55 cents per bushel. Will it pay to buy the hog cheese and make rich swill to feed with corn, or had I better feed soaked corn alone?"—Corn at the above rates is the cheapest food, and will make the best pork. The hog cheese will make the richest manure.

The Timber Tree Law.—"Enquirer."

The law to encourage the growth of timber on the western prairies provides "that any person who shall plant, protect, and keep in a healthy growing condition for ten years forty acres of timber, the trees thereon not being more than twelve feet apart each way, on any quarter section of any of the public lands of the United States, shall be entitled to a patent for the whole of said quarter section at the expiration of said ten years, on making proof of such fact by not less than two credible witnesses. *Provided*, That only one quarter in any section shall be thus granted."

Harvester that Binds Grain.—"Subscriber," Albany, New South Wales.

There is a machine manufactured that cuts and binds grain, but we doubt if it has as yet achieved perfect success. That it will before long is very probable. Then doubtless the manufacturers will make the fact known.

To Cause a Growth of White Hair.—"J. N. H.," Le Roy, Ill.

Sometimes after a blister or a gall has been made upon a horse's skin, the new growth of hair will be partly or wholly white. This occurs but seldom. The reason of the fact is supposed to be that the growth of hair is weakened, or the follicles which furnish the coloring matter to it are destroyed. Any caustic application then that will temporarily remove the hair and cause slight disorganization of the skin may have the desired effect. For the purpose of matching a temporary white spot paint may be made to answer.

Weight of Clover-hay.—"S. J. H.," Tusculum.

Clover-hay is bulky at all times; and in weighing hay from the cock and from the mow, where it has been packed for some months, the advantage in weight with us has always been with that from the field. A wagon load 15 feet long, 5 feet average width, and 7 feet high from the wagon bottom, taken from the cock after only one day's handling, would weigh about 1,500 pounds. This would be about 800 cubic feet to the ton, which is what it generally weighs from the mow after having settled. The hay from the field possesses considerable moisture which escapes during fermentation in the mow, and this equalizes the weights. Perfectly sundried clover-hay would be 25 per cent lighter in the load.

Steam on a Small Farm.—"J. R. F.," Sausalito, Cal., Pa.

On a farm of one hundred acres cleared, where there is only two hundred bushels of grain used for feed each year, and where there is already a horsepower in use, we would not recommend the outlay of \$500 for a steam-engine and feed-mill. A feed-mill which will do all this grinding can be procured for \$50 if of iron, and \$100 if of burr-stones, and it may be run by the horse-power. The saving will be the toll for grinding, equal to twenty bushels per year, worth possibly \$15 less the interest on the cost and the wear and tear of the mill. This is not a very paying investment at any rate. The \$500 laid out in improvements of the land—draining, manuring, etc.—would probably pay a vastly greater percentage each year.

Harvesting Beans.—"T. B. O.," Wayne Co., Ky.

You will find an article on stacking beans in the August number. If the short pieces of rail mentioned therein to be placed beneath the beans can not easily be procured stones may be substituted. If no other way presents itself, the beans may be laid directly on the ground, and as the lowest bundles will be somewhat damaged in appearance in consequence, it will only be necessary to keep those by themselves and thrash them separately. They may be cooked, and given to hogs or fowls profitably.

Tubes for Lactometer.—"R. Q. Tenney," Colorado.

The tubes for a lactometer, such as is described in *American Agriculturist* for October, 1872, may be ordered of any druggist, who will procure them in this city or Philadelphia for 15 to 20 cents each when he orders his periodical supply of drugs. They are common chemical test-tubes, should be 12 inches long, and 1 inch in diameter, or as near that size as possible.

What He Knows about the Tails.

A correspondent of the N. E. Homestead writes about *Equisetum arvense*, the "Horsetail," and then goes on to give this remarkable bit of information: "There is another weed, own cousin to the *Equisetaceae*, which is poisonous to horses, and killing them, as I have heard in instances, that is, *Hippuris* (mare's-tail). The plant resembles in growth the horse tail, only it grows much larger, to the heights of two feet or more, and of other proportions." The *Hippuris* is about as much cousin to the *Equisetaceae*—by which we suppose *Equisetaceae* is meant—as an elephant is cousin to a clam. *Hippuris*

is one of the rarest of plants, and as it grows in ponds, usually entirely under water, horses must be very acute to find it. A knowledge of their subjects would help these professional writers for the press.

A Woman will Talk.—At the Nebraska State Fair, to be held at Lincoln the first week in September, Matilda Fletcher, of Iowa, will tell what she knows about "Farmers' Wives and Daughters."

It is hardly possible for Miss Fletcher to be worse than the average of fair orators, and there is every chance that she may be much better. At all events the innovation is an interesting one, and it is only fair that the fair who contribute so much to the success of fairs should say their say. The Nebraskans might "go farther and fare worse."

Salt Wells Operated by Gas.—"M. M.," Brandenburg, Ky.

There are several salt wells in or near Kanawha Co., West Va., in the operation of which the natural gas escaping from them is used for fuel. A. J. Vosburg, of Charleston, Kanawha Co., West Va., is interested in such a well, and would doubtless furnish information as to his method of using the gas.

Caponizing.—H. H. Stoddard, Hartford, Ct., is the correct address of the party who supplies caponizing instruments. Inadvertently it was given incorrectly in a late number of the *Agriculturist*.**Scours in Pigs.**—"A. R.," Try a change of food. Make everything about the pen absolutely clean. See "Harris on the Pig."

We have sometimes found it good to give a little sulphate of soda (Glauber salts) dissolved in water and mixed with the food. For a young pig half a tea-spoonful of salts is plenty.

Early Rose at the South.—It is very difficult in the Southern States to keep early potatoes until the time for spring planting.

Mr. P. J. Berckmans in his paper the *Farmer and Gardener*, Augusta, Ga., gives his method of treating them. He digs the potatoes when ripe, in June, and spreads them on a platform under the shade of a tree. During a rain they are covered with bagging. These potatoes are planted early in August, and are ready to harvest by the first of November. This second crop should be planted on land that had been well manured in the spring, but no manure is used at the time of planting. Whole, medium-sized tubers are used. The ground is kept level, and well mulched with straw or litter. The potatoes raised in this manner keep well until late in the spring.

The Double White Pelargonium.

Aline Sisley, has, Mr. Chitty informs us, flowered at the Bellevue Nursery, Paterson, N. J. This is, so far as we have heard, the first time that this horticultural novelty has bloomed in this country. Our own plant, though growing well, shows no indications of flowering.

A Hay Unloader.—"G. W. Long," DeLaware Co., Iowa, writes us that he has invented and tested a new device for unloading hay, straw, chaff, or stalks, by which one pair of horses will take up half a ton at one time without scattering any. The cost is very trifling and not over \$1.50.—If such a device is in existence and operates as is claimed for it it will be of the greatest benefit to farmers, and we should be glad of an opportunity of examining it. Send a drawing and full description.**Weight of Corn Husks.**—"Wm. M.," Georgetown, D. C., desires to know how much the husks from a barrel of corn ears (5 bushels) will weigh.

As we do not know, never having tested the matter, we shall be glad to hear from some of our readers who know or who will take measures to learn when husking corn.

Clover Sod for Wheat.—"F. S. B.," Lexington, Ky.

There is nothing better than a clover sod for wheat. But it should be plowed in time for the sod to rot before the wheat is sown.

Falling off in Milk.—"C. H. W.," Nova Scotia.

It is not at all an uncommon case that a cow which becomes in calf, immediately falls off in milk, and the quality of her milk changes very much. This is the natural condition of the animal. If such a habit is found unprofitable the only resource is to feed her, and substitute another animal in her place. Our cows are artificial animals, but yet occasionally one forgets her education and goes back to the original condition of her race.

Frauds in Guano.—In March last we published the analyses, made by direction of the New York State Agricultural Society, of the article sold in

New York City as guano. The results showed that guano in New York was a very variable article, and that very extensive adulteration was practiced somewhere. Recently the Peruvian Government, who have the monopoly of the Chincha and Guanape guanos, have brought suits against several firms in New York. The complaints are of refilling old bags with an adulterated article, and of imitating the brand or trade-mark of the Government. The bags of genuine guano have the trade-mark printed upon them, and this is precisely imitated in *stencil* by some persons. We have examined both marks, and there can be no doubt that there is a gross fraud somewhere. We do not give the names of the persons accused, as it is only fair that they should be held innocent until proved guilty. We shall watch the trial with interest, as it is a matter that concerns every farmer who uses fertilizers.

Fairs, State and County.—See list on pages 353, 354, and 355.

Of Interest to Inventors.

Hardly a week passes that applications are not sent to this office for information about obtaining patents, inquiries for reliable patent agents, and requests that we undertake to secure a patent for the inventor. Heretofore we have been unable to do more than recommend parties to the most reliable agencies within our knowledge. Considering the fact that about three hundred patents per week are issued from the Patent Office, that a very large part of these relate to agricultural or household interests, thus bringing them within the range of matters to which the *American Agriculturist* is devoted, and knowing that a large number of our correspondents earnestly desire that the reliability which has characterized the *American Agriculturist* in all its departments may be made serviceable to them in this, we have organized a department for Patent business in connection with this office, as announced in our advertising columns.

We believe our arrangements and means for successfully conducting this department are unsurpassed, and that inventors will find that through the *American Agriculturist* they may best introduce their inventions to the public and secure the due reward for their talent. There are abundant fortunes yet to be reaped by discoverers of valuable improvements, and it will be a pleasure to help those who seek to introduce worthy inventions. The community will in the end receive the greatest benefit, whatever reward may be gained by the inventor.

The Patrons of Husbandry.

This order is multiplying with astonishing rapidity. At the South and West especially Granges are being formed so rapidly that it is useless to try to keep pace with them. In one county alone in Kansas there are forty Granges with a membership of over one thousand. In an article last month we expressed a fear that this great organization would be in danger from professional politicians. One Grange in Iowa issued a call for a meeting to nominate local officers, which was promptly suppressed by the State Grange. Should the order confine itself to the objects expressed in its constitution it will have before it an unlimited field of usefulness. The organization of the order is such that all subordinate Granges report to their State Grange and the National Granges report to the National Grange, which body is, so to speak, a court of final adjudication, having powers, as set forth in Article III of the constitution of the order, as follows:

"The National Grange, at its annual session, shall frame, amend, or repeal such laws as the good of the Order may require. All laws of the State and Subordinate Granges must conform to the Constitution and the laws adopted by the National Grange."

We give a list of the principal officer of the National Grange, and assume, without any positive knowledge on the subject, that the secretary will furnish documents to those who wish to know more about the Order:

OFFICERS OF THE NATIONAL GRANGE.

DUDLEY W. ADAMS, Master, Waukon, Iowa.
O. H. KELLY, Secretary, Washington, D. C.
T. A. THOMPSON, Lecturer, Plainview, Minn.

EXECUTIVE COMMITTEE.

WILLIAM SAUNDERS, Washington, D. C.
D. WYATT AIKEN, Cokesbury, S. C.
E. R. SHANKLAND, Dubuque, Iowa.

It will be seen that Mr. Saunders, who was the originator of the organization, has relinquished the office of Master for that of a member of the Executive Committee.

The American Pomological Society.

We trust that no pomologist or fruit-grower, whether his operations are on a small scale or on a large one, will fail to attend the meeting of the American Pomological Society, which will be held at Boston on the tenth of the present month and continue for three days. Every fruit-grower should be a member of this Society; the veterans in the cause that they may give others the benefit of their experience, and the novices that they may learn from others. The sessions are biennial, and are held in different parts of the country. The dues are small, and are amply returned in the volume of transactions.

Although Boston has suffered severely from fires, the enthusiasm of her horticulturists is in no wise abated, and we hope that fruit-growers from abroad will make a special effort to be there, as it will gratify them to see the general sympathy with horticultural matters that pervades the whole community.

There are two things that we hope will be settled at this meeting. One, the matter of giving premiums. At the meeting at Philadelphia four years ago premiums were given; at Richmond the example of Philadelphia was followed. The home of the president could not be outdone by other cities, so premiums are offered at this meeting. We hope that the Society will vote to discontinue all premiums in future. The objects of the Society are to correct nomenclature, to ascertain the adaptability of varieties to the different States, and to take proper notice of new fruits. This offering of premiums to States, societies, or individuals is foreign to the purposes of the Society, and besides this, it subjects cities where the meetings may be held to an unnecessary and onerous expense. A dozen new fruits are of more value, speaking pomologically, than the whole car-load of old—and no doubt splendidly grown—varieties that Nebraska will bring. Hereafter let those who can show their fruits, but let the matter of premiums be dropped now and forever, reserving the Society's medal for those who have distinguished themselves in promoting pomology. The second is essays. If there ever was a waste of time it is in hearing one read an essay on fruit culture that might just as well be perused at leisure in print. It is generally the case that those who write well do not read well, and if essays are of necessity to be read, let the Society employ a reader. If essays must be, let them be submitted to a competent publishing committee. Some things have been printed in the Society's reports that would be more appropriate in a report of the Farmers' Club of the American Institute.

Bee Notes.—Advice to Beginners.

BY M. QUINBY, ST. JOHNSVILLE, N. Y.

Whenever a man thinks that he knows all there is to be known about any one thing there is with him an end to all improvement. For a person of such conceit there is considerable doubt of a cure. Yet, in my own case, I feel that I have been greatly helped by finding out a better way for some things than that which I once supposed the best. By carefully following out the idea that there is much to learn much more may be acquired. If something turns up to-morrow superior to what we have to-day, I see nothing to hold us to the old idea—except it be some patent we want to support. In regard to feeding bees, I thought a few years ago that I had the best way, and recommended putting off feeding for winter stores until October and November. Atmospheric changes for the last two winters indicate that bees should be fed earlier. Colonies that are suitable for winter, or can be made so, will have brood sealed up after the honey season has failed. This will occupy the combs mostly near the center or bottom of the hive. It all hatches at the end of the season, leaving the cells empty, and as bees in cold weather pack themselves closely for mutual warmth, this is just where they should be. A great many can creep into these cells, they being shorter where brood has hatched than where they have stored honey. It gives more room between the combs for packing. Five or six times as many will crowd into the same space in the hive as where honey has been stored—the closer they are packed the warmer they will be. The past two winters bees have suffered more from cold than in forty years before. We should guard against every emergency. If to bees that need winter stores food is given after the brood is all out, they will store it in these empty cells, occupying the best place for clustering in cold weather. As soon as the yield of honey closes, or very early, and before the brood hatches, we should ascertain if they are likely to have sufficient stores, either by weighing or guessing. By feeding now those that need it they are obliged to put it outside the combs already occupied; it is sealed up while the weather is mild, and everything in order for winter, just as if they had got their supply

direct from the flowers. Twenty-five or thirty pounds of honey is sufficient for a large colony. If one is weighed to ascertain the amount, allowance must be made for the weight of brood. If the combs are old, the difference between such and new ones should also be considered, as well as the bee-bread they sometimes contain. If a hive has too few bees at this time, and all else is right, and it is wished to stimulate breeding, feed very moderately, not quite a pound a day for two or three weeks, until there are bees enough, and then give all they will take until the stock is heavy enough. The feed may consist of honey, or syrup made of white sugar. Honey should have a little water added, and if candied scald and liquify it. To the sugar add about one quart of water to three pounds of sugar, and boil it. Bees will thrive as well on this as on honey, and it is generally cheaper.

A colony that has too little comb to hold sufficient stores for winter and give a space for the clustering of the bees, should have combs added, or it will be unsafe to attempt wintering. If bees are taken out of such, and the combs are healthy, it is more economical to save the combs than to mash them up and strain the honey. The combs are of more value than the honey. Either let the bees take out the honey now or put away the combs unbroken for spring, when they can be given to the bees to stimulate early breeding or transfer to empty frames for their use. Waste no good combs, even if old and dark. Examine more particularly the first of this month every stock, to see the condition for winter. I once introduced an Italian queen (September 1st) to a black colony that had been queenless for some time, yet was pretty strong, strong enough to nurse the brood. When put into winter quarters, a little over two months later, all the black bees had disappeared, and a colony of Italians occupied their place, that wintered well.

The market for surplus honey begins this month. It should be packed in cases holding about 50 pounds, and only one tier of boxes in depth. Have open sides, that it may be seen, if in glass. Have a handle on each end, that one person may carry it instead of throwing it. Mark it glass, as very many erroneously suppose that glass is more easily broken than honey-combs. Boxes are usually safer when carried bottom up. Paste paper over all holes and passages in the boxes. Keep everything clean, that it may appear as tempting as possible. Most of the honey is sold at commission houses to retailers, and by them to consumers.

I would like to inquire, and have every one inquire of himself, if any progress has been made in getting rid of the fear of stings, the great obstacle to successful management; and is the impropriety of teaching children the fatal bugbear that bees are always disposed to sting, whether molested or otherwise, fully realized? The fact that a bee at work on a clover head, away from home, can not be made to sting unless caught and held fast, is so easily and safely proved, that any one without courage to test it had better not undertake to manage bees.

Smut in Wheat.

An Ohio farmer writes: "I wish you would tell us how to prevent wheat from turning to smut."—Wheat does not turn to smut. Smut is a fungus. It is produced from "seed." You can make any wheat "turn to smut" by introducing the fungus to the growing wheat plant. As a rule, smut, or bunt, is produced by sowing seed-wheat that has the spores or seeds of the fungus attached to it. We must kill these spores before sowing the wheat. They are easily killed. Chamber-lye and lime will kill them; so will a weak solution of common salt and water, say one pound of salt to a gallon of water. This will not hurt the seed-wheat, but a strong brine will seriously injure its germinating properties. We think it very likely that a weak solution of carbolic acid will prove useful, but we have not yet tested it sufficiently to recommend it.

The remedy that we have the fullest confidence in, and which has been repeatedly tried, is as follows: For each bushel of wheat take 3 ounces of blue vitriol and dissolve it in a quart of boiling water. When cool, sprinkle it over the wheat and turn the grain till every seed is moistened with the solution. Nothing more is needed. It is not necessary to use lime to dry the wheat. It will be dry enough to sow with the drill as soon as it has been treated, but it will not be hurt if it remains for days or weeks before sowing. The quantity of blue vitriol named above is sufficient to kill the smut, but double the quantity may be used without the slightest injury to the seed. Our own plan is to place, say 20 bushels of wheat in a heap on the barn floor, and sprinkle on to it, while it is being turned, about six gallons of water containing 3 pounds of blue vitriol. If old wheat is used for seed, or if the wheat is very dry, more water will be needed to moisten it, say eight gallons for the 20 bushels. The great point is to be sure that every kernel and every part of the kernel is wet with the liquid. The

heap will need to be turned over half a dozen times, and the scattered kernels on the outside of the heap should be swept up to the heap and mixed with it so as to moisten them. A little common sense and some care and patience will enable any one to do the work properly.

New Lands at the West.

THE BURLINGTON AND MISSOURI RIVER RAILROAD.

Large grants of land have been made by Congress to different railroad companies in the West to aid in building their roads through unsettled portions of the country. Usually these grants embrace every alternate section of 640 acres for twenty miles on each side of the road. The government retains the remaining alternate sections for sale to actual settlers or for occupancy under the Homestead Law. The price of Government lands within these railroad limits has been doubled, so that there is no loss of money to the national treasury by the grants, and the construction of the roads has doubled the value of these lands to settlers by bringing them within reach of markets.

The railroad companies have advertised their lands extensively in the *American Agriculturist* and other papers, and we have received numerous inquiries as to their character and the advantages open there to new settlers, etc. It is our purpose to give as much such information as our limits will allow, derived from recent somewhat extended tours through a large part of these grants in Iowa, Nebraska, Kansas, and Minnesota.

The Burlington and Missouri River Railroad, which has a large area of this land, extends from Burlington on the Mississippi River westward through the southern part of Iowa to Plattsmouth on the Missouri River, thence westward through part of Southern Nebraska to Kearney, where it intersects the Union Pacific Railroad. Eastward it has direct connection with Chicago by the Burlington, Quincy, and Chicago Railroad. This gives easy access to markets for all surplus crops. This company offers lands along almost the whole of their line within a distance of twenty miles on each side. Almost the whole of it is prairie country of unsurpassed fertility. Along the streams, which are plentiful, the country is mostly level, and the black bottom lands yield generous crops of wheat, corn, and other cereals. The soil is from three to ten or more feet deep. A few miles back from the streams the surface is gently rolling, the soil almost equally good, and in dry seasons even more desirable, the drainage being excellent. The whole region is intended by nature for the production of breadstuffs. They can be raised with less labor here than in most of the older settled States. Frequent instances were met among the new settlers where the crops of two years had more than paid for the cost of the land.

Here and there a locality more broken or hilly than the general surface of the country is admirably adapted to grazing. We saw herds of cattle, numbering thousands in each, feeding upon the unfenced prairie, under the care of herdsmen who remain with them throughout the season.

Water is abundant in the streams, and easily procured from wells, which require to be sunk or driven fifteen to twenty feet only. The banks of the streams are fringed with trees, mainly cottonwood. Where the fires have been kept away from the young growth in the more settled parts they have spread with great rapidity. The settlers have planted groves of trees in the neighborhood of their houses quite extensively, and the rapidity of growth is remarkable. We saw numerous instances where trees grown by the acre averaged nearly or quite six inches in diameter six years from the planting. One grove contained cottonwood, elm, oak, maple, and black walnut, surrounding apple, cherry, and other fruit trees, and all were of most thrifty appearance. Small fruits thrive as in a garden. In fact, almost the whole section embraced in this grant is a natural garden only awaiting cultivation to give the most bountiful returns.

The healthfulness of this region is attested by the natural features of the country and the unanimous testimony of the settlers. The region is elevated, well drained, and free from malaria and the consequent diseases which are so frequently prevalent in new countries.

The rapidity with which the region has been peopled with settlers is good evidence that the country is at least attractive to agriculturists. Three years ago there was scarcely a house in sight of the road for one hundred miles or more in the Nebraska portion. Now, through the same region, there is scarcely a point on the road where one or more houses may not be seen. The Iowa portion of the lands have been very largely disposed of, though much that is desirable remains, lying, however, back from the railroad, and of course being held at less price than farms adjoining the line. In Nebraska there are opportunities for thousands of young and middle-aged energetic men to do as thousands have already done—settle and thrive.

Packing and Marketing Produce.

BY J. R. HELFRICH.

PEACHES

For the New York market sent from the vicinity of Charleston and Savannah should be picked when dry and then allowed to cool off in the shade before packing. They should then be carefully handled, so as not to bruise them, and packed in small crates holding about one-half bushel, the crates to be made of two ends and a middle piece, with slats similar to masons' lath nailed about one-half inch apart all around; the ends and middle piece should be 13 x 4, and the lath cut two feet long; there should be a piece of lath nailed all around each end of the crates to keep them apart during shipment to allow of the free circulation of the air and escape of the heat. The fruit should be not quite ripe when picked, but near enough to allow it to ripen by the time it arrives in market. If paper is used to wrap the fruit it should be of the thinnest kind, such as is generally used for wrapping oranges, but I have never seen any advantage in wrapping peaches.

Peaches will carry well in the American Basket Company's crate for 32 quarts of strawberries using their verberna baskets to hold the fruit; the crates hold 16 verberna baskets, each basket holding two quarts. The crates should have corner pieces nailed on them to keep them apart when piled together, to allow of a circulation of air around them.

For Virginia and Delaware, use baskets holding $\frac{3}{8}$ of a bushel, and crates of one and a quarter bushel (or two $\frac{3}{8}$ baskets), also $\frac{7}{8}$ crates of three pecks 7 x 14 $\frac{3}{8}$ or $\frac{3}{4}$ in. stuff covered with lath or slats two feet long. The baskets should be well filled and covered with a muslin cover. The crates are made of two ends and a middle piece of $\frac{3}{8}$ or $\frac{3}{4}$ in. wood, 10 in. wide and 14 in. long, and covered with slats or lath $\frac{1}{4}$ to $\frac{3}{8}$ in. thick, 1 $\frac{1}{2}$ to 4 in. wide, and 2 ft. long, leaving about three-quarters of an inch space between the slats. The lumber should be planed smooth, and the crates neatly made, as neat packages very much help the sale of the fruit. Nail lath around each end of the crates to keep them apart when packed in the cars. The inside corners of the slats should be beveled off to prevent cutting or bruising the skin of the fruit in packing and handling.

Good salesmen take a pride in getting good prices for fruit sent to them, but it is impossible for them to get as much for fruit put up in a slovenly manner as they can if it is put up properly; and shippers will find that they will always be well paid for all the trouble they take in properly assorting and packing. A great part of the fault that is found with the salesman is the fault of the shipper himself. One shipper will pick the whole of his fruit, pour it into the crates without sorting or care of any kind, and expect to get as high returns as his neighbor who picks carefully, sorts out all soft and small fruit, and packs tightly in crates.

Picking should be done when the fruit is dry, and it should be handled carefully. The pickers carry it to the packers, who should have clean straw canvas or boards laid on the ground upon which to turn out the fruit. The packers should be particular to keep out all soft and small and gummy peaches, and when the crate is about half full they should be well shaken down; then fill the crate so that it will need a gentle pressure in bringing the slats or cover down to their place and nail up. Mark the shipper's name and to whom consigned plainly on the

end of the crate with a stencil plate. If baskets are used, observe the same care in sorting and packing; fill them well, and put on muslin covers; stencil the covers, and mark shipper's initials on the side of the basket. It is a bad plan to top off the baskets much; they should show a fair run all through alike, as shippers' names soon become known in market, either for good or bad, according as they put up their fruit. Extra choice fruit put in baskets should be sprigged or marked by running a twig or small limb of a peach-tree through the cover; if in crates, mark "extra" on the end. Notify by mail or telegraph to your salesman the number of baskets or crates, and extras if any, and how shipped, as soon as shipped, that he may know how many packages to look for, and facilitate his sales.

PEARS.

There is no fruit that will repay the grower for his care in picking, selecting, and packing more than pears. The finer varieties should be picked a sufficient time before they are ripe to allow for the time they are on the way, and at least one to three days in market before they become fit to use. Pears should be hand-picked, and thoroughly sorted; keep out all over-ripe and wormy ones, and sort up and pack and mark as "firsts" and "seconds." For early crops from the South, choice pears, such as Duchess, may be wrapped in paper, and packed in flat crates holding half a bushel or a bushel. They should be laid in closely, and the crates so filled as to press down tight with the cover to prevent moving in the crates in handling. At the North and West pears should be picked and laid in heaps at least twenty-four hours to sweat. Then pack in clean new barrels or half barrels; place a layer of the finest in the barrel, lay them on their sides and closely together; then partly fill the barrel and shake it down; then fill up so that the head will have to be pressed down with a screw or lever, that there will be no possibility of their moving or rattling in the barrel when handled; head and line-hoop, and mark the other end with variety and quality, shipper's name, and to whom consigned.

Cooking or common pears should be packed in barrels, and same care used in picking, packing, and marking.

The barrels should be tight and new, as any barrels that have been used for sugar, salt, or flour will cause the fruit to ferment and rot. For a near-by market $\frac{3}{8}$ baskets may be used for marketing pears, and the same care taken as in packing peaches in baskets.

Rye for Pasturage and Hay.

BY A. B. ALLEN.

From long experience in growing it, I can assure your readers that rye, when properly cultivated, is one of the most valuable and probably the most reliable of all our forage crops. The reason of its being the most reliable is that it makes its growth in autumn and spring, when the temperature is congenial, and there is almost invariably a sufficiency of rain, which is more than can be said for the summer crops.

Rye, on a moderately dry soil, can be pastured by sheep and young cattle late in autumn and early again in spring without injury to it when cultivated in the following manner. Enrich the soil and prepare it as carefully as if for wheat. Sow early in September, and put in the seed twice as thick as is usually done. By such a preparation a quick rank growth is insured, and the stalks being so much closer

together on the ground they grow up smaller, more tender, and more palatable to the animals consuming it.

Early in May rye begins to head, and it is then fit for soiling. Later in the month, or early in June, when full-headed, but before the grain begins to form it can be cut for hay. After doing this, we dry it in the sun from seven to ten hours, according to the heat, then bind it in sheaves of about six inches in diameter, shock them in the field for a few days until there is no danger of heat, then stack or store in the barn. It is very important not to dry the rye too rapidly nor too much, for in this case it loses a good share of its fragrance, and becomes more difficult of mastication and less palatable to the animals consuming it.

My horses and cattle seem to relish rye thus grown and cured as well as they do the best of timothy; and so far as I can judge, I think it does them as much good as average hay, and I should certainly prefer it to much hay that is not cut until after the seed is formed.

It was very dry with us here in New Jersey this season from early in May until the 18th of July, and pasturage and hay consequently short; but the rye carried us through admirably until the last of July, when the sweet-corn was fully tasseled and five to six feet high. This then took the place of rye for the remainder of the season.

In the cool, moist climate of Great Britain, and on the continent, where irrigation is practiced, rye or ray-grass is much cultivated as a forage crop. Our fall and spring rye may be as largely and as advantageously grown among us for the same purpose as the above two grasses. Wheat also may be cultivated for forage, and as it ripens later than rye it would assist in prolonging the soiling crop. Its straw is more nutritious than that of rye, and is equally palatable.

Ogden Farm Papers.—No. 43.

Mr. J. Milton Mackie has been stimulated by the report of Mr. Robeson's dairy to publish the record of his own for the month of June—when 14 cows made 422 lbs. butter, being an average of one pound per day for the whole herd, not nearly all the cows being in fresh milk. This is the more noteworthy, as many of his cows are rather small even for Jerseys. It sometimes seems as though an apology were due the readers of these papers for the frequent accounts given of the performances of this breed, and I hesitate the more to write so much on the subject from the fact that I am myself a breeder of them. At the same time, I adopted them some years ago in the belief that they would be the most profitable for my dairy, and I am more and more convinced not only that this is true, but that every butter-maker in the country will find the profit of his dairy to increase in direct proportion to the increase of this blood in his herd. If my writing results in its introduction here and there throughout the country its prevalence is sure to increase to the great advantage of one of our most important industries, and all this reiteration will be fully justified. The demand for Jersey cattle is rapidly extending, especially in the West and South-west (in spite of the very heavy cost of sending single animals by express), so much so that I have decided to establish a depot in Southern Illinois to which to ship more cheaply by the car-load, supplying that demand more reasonably.

The "deep-can system" has had such a long rest that I shall not be blamed for referring to it again. After a trial of it for about two years

I do not hesitate to pronounce it perfect. We make precisely the same quality of butter (except for the matter of color) 52 weeks in the year. Hot weather and cold weather have absolutely no influence on the milk in the cans, nor on the cream itself up to the time of putting it in the churn. Furthermore, there is much less labor required in the milk-house, and much less *care* in the operations of the dairy. I am so well convinced of this that I am quite safe in pronouncing any farmer who continues to use shallow pans, if he *can* use deep cans, an "old fogey." The matter does not rest on my own evidence alone; it has been tried in many other places, and with universally good results.

Mr. F. D. Douglass, of Whiting, Vt., has adopted a modification of the plan, which does not seem to me to be so good, but which helps to show that the *principle* is correct. He uses for a dairy of 25 cows 50 pails, 13 inches deep, 13 inches in diameter at the top, and 11 inches in diameter at the bottom. He has four water-vats 13 inches deep, each of which will hold twelve of these pails. They are made of the best Michigan pine plank, 2 ft. 4 in. wide at the top and two feet at the bottom—made tight by being painted on the outside and coated with a mixture of one part tallow and three parts rosin, applied hot. He keeps the water at a temperature of from 60° to 63° (which I think too high. The Swedish temperature is about 40°, and I think from 50° to 60° would be better than anything higher). For the same amount of milk I use only about from 18 to 20 deep cans, and stand them in a vat of running spring water. He uses them only in the summer. Probably he would find cans better than pails, and cool water better than stove-heated air in winter. However, he has made a departure from the old system, and has written some very telling articles on the subject.

He has been assailed by the advocates of the "patent" large-pan system—a fate which has not yet befallen me. He meets his critics very fairly and successfully, and with some arguments that are worth repeating. The large pan in question is broad and moderately deep, and is surrounded and underlaid with cold water. In his opinion, this is much better than the common small pans, and quite satisfactory to all who have used it; but he thinks it would not be satisfactory to any one who knew the superiority of the deep pails. In this I fully agree with him. The reason for a chief objection to these pans is "the fact of the tendency of heat to rise, and the great difficulty of drawing it downward through fluids. We can cool a fluid much more readily by placing ice upon its surface than by placing it upon ice. . . . If you place a can of warm milk upon a large piece of ice its top will soon sour, while the bottom will remain sweet. If you place ice upon the lid or sides it will cool quickly and uniformly, and all remain sweet for a long time. . . . I find that if in any warm sultry weather I allow the milk in my pails to extend two or three inches above the surface of the ice water it will thicken at the top, while the bottom is apparently sweet." He then goes on to say that the main object is to maintain a *right* and *uniform* temperature, and that he can accomplish this better by immersing his pails in cold water than by using Jewett's milk-pans where the cold water is underneath. Furthermore, it will not suffice to let the water rise up against the sides of these pans, because they are too wide, and their heat is withdrawn very slowly in a horizontal direction. The milk at the sides

would be cooled, but that in the middle would remain warm long enough to become sour. Then, again, the pails are much more easily kept clean and sweet, which is of the utmost consequence. So, also, the sour milk is removed more completely and with less danger of tainting the room. The last point, which is also a very important one, is the exposure of the cream to the drying and oxidizing influence of the air.

He certainly makes a very clear case, and probably if he would adopt the 25-inch can (eight inches in diameter) he would find them as much better than his broader and shallower pails as these are better than the Jewett pan—and as this is better than the small, shallow pan in common use.

After all, the essential points in setting milk for butter are:

1. To have the temperature reduced *as soon as possible* to 60° or lower.
2. To *maintain* a temperature at least as low as this.
3. To expose as small a surface of the cream as is practicable to the action of the air.

The "deep-can system" secures these conditions much better than any other with which I am acquainted. By its aid, and from the milk of pure Jerseys, we make at Ogden Farm butter which sells for \$1 per pound all the year—and is worth it to those who are willing to pay an extra price for an extra article. It is even more simple than the common shallow-pan system which is in use all over the country; and there is not one trace of a good reason why any man who can afford to invest not more than \$10 per cow for tank and cans should not give up the old and very imperfect one and adopt the new and very nearly perfect one.

If this single change could be made at all universal throughout the country I should be better satisfied with the good resulting from my writing than I ever hoped to be. I should be willing to rest my claim for having done good in the world on any influence I might have exerted in drawing attention to a system which could not fail to increase the quantity and improve the quality of the butter made in this vast country. I did not invent the system, nor was I the first to adopt it in this country, nor have I made any improvement in it in any way. My office in the matter has been the very minor one of testing, demonstrating, and publishing; but I shall be entirely satisfied if I live to see the plan generally adopted. The publishing part of my work has not always been agreeable, and if I had had a disposition to "talk back," I could have had my hands full of disputes with people who were not disposed to agree with me, and who were disposed to say so in the public prints.

The correspondent on whose letter about abortion in cows I commented in the July number writes a long and good-tempered reply. He has opinions on the subject of what causes or what *may* cause abortion, but they are only opinions; and I should refer to the matter again only because it is so usual for a farmer to try to "think out for himself" the causes of the most hidden operations of nature which affect their business. I never knew one of my neighbors to have a cow abort that he did not set about conjuring up a satisfactory explanation of the calamity. This is all right, and it shows intelligence and enterprise which are most valuable to the individual and to the country; but we should remember that no evil so wide-spread and so prevalent as abortion has

been allowed to pass unnoticed by the most scientific authorities, and that if the simple theories by which an isolated farmer—who has had only his own experience to guide him—were sufficient, they would long ago have been adopted and the remedy would have been found. A considerable amount of brain work has been devoted to all sorts of agricultural matters—and by brains of very respectable capacity, too—and whenever we want to know the reason for any new development in our practice it would be well and wise to begin by reading the experiences of our predecessors.

In the August *Agriculturist* there is a compendium of the reports of the three years' investigations of the New York commission on abortion, and I think any one who has formed a theory of his own on the subject will be sorry to see how completely these investigations have failed to sustain him. Thus far, all that has been suggested as a cause has been for centuries in operation—equally where there have been and where there have not been cases of abortion.

My correspondent says in defence of his suggestion about "a leather whip," that if he don't have that his men will use clubs. I think that any man who would use a whip to a cow (or a woman) would only use it when he had lost his temper sufficiently to strike her with the first thing he can reach, and this is usually a milk-stool. Such a man is not fit to come near a cow, and there is no safe rule but to discharge him for the first offence.

Mr. C. E. Benton, of Sharon, Ct., writes about abortions: "The complaint has been common here for many years, but is growing less frequent. The only successful medicine thus far is *fine bone* fed with the salt—about as much bone as salt. I have known this in many cases to effect an entire cure. Sometimes when the bone was withheld for a few months the disease would reappear, but would again disappear when it was renewed. On my own farm I am applying bone manure to all the land I seed down, with the idea that it may supply the something that is lacking in the grass itself, and thus effect a radical cure. So much for practice. The scientific why and wherefore we do not yet know."

In a later letter he says: "I have had the curiosity to spay a cow that aborted last winter—a native cow, ten years old, and in good flesh. One of the ovaries, the one showing the sear of the last impregnated egg, presents a diseased appearance. It seems to have burst its outer covering in one side, and that portion has an inflamed and bloody appearance. I don't know whether this is anything new to others, but it is so to me; neither do I know whether it is of any value—but it would seem to indicate that the trouble does not begin at the womb, as I before supposed, but that the egg itself came from a diseased ovary. I put it in alcohol. If it is of interest to any one they are welcome to it."

This investigation may be worth following up. With regard to the use of bone, it is a significant fact that, so far as I know, abortion is mainly confined to the older farming districts of the country, in which the phosphates are more or less exhausted.

In the August number of these papers the types make me say that we reduce our milk to a temperature of 50°. It should have been 58°—that being the temperature of our water. I wish it were 50°.

The Poitou Mule.

We are indebted to the London Field for the two engravings which appear upon this page. They are copies of photographs of a pair of Poitou mules. Poitou is the name of one of the old provinces into which France was at one time divided, and is a district consisting of the present departments of Vienne, Vendée, the Two Sèvres, Charente, and Lower Charente, and occupies the west coast between the mouths of the rivers Loire and Gironde. The town of Niort is the chief center of this district, which is wholly given up to mule breeding; at least 50,000 mares being there kept for this purpose. These mares are fine large animals, and are specially chosen for the purpose of producing large and heavy mules. The jack or ass used is also one peculiar to this district, and is known as

the Poitou ass, not only throughout France, but also in Spain, where for certain purposes his progeny is eagerly sought. English and American buyers also frequent this district as purchasers, and at the fairs which are held periodically enter into eager competition with foreign and other native buyers. At some of these fairs 1,000 head are frequently exhibited for sale, but very rarely or never is there anything sold but mules. The asses are never publicly sold, but may be occasionally picked up by those anxious to procure them from the breeders. These mules, as may be perceived from

the engravings, are heavy limbed and large-footed, as well as heavy bodied. The head and ears are rather large and coarse, but this is maintained by the breeders to be a necessary adjunct of the heavy body and limbs. The neck and chest are broad, and the shoulders muscular and well formed. The hocks are large, and the legs altogether short and stout, as are the pasterns. The legs are flat and hard, and sometimes there is a good deal of hair upon them. The feet are larger and more expanded than those of any other breed of mules. It will be observed that these are valuable points in an animal used for draught purposes, and are calculated to meet the main objections urged against mules for heavy work. The light body and especially the light limbs of the mule, as we know it, cause it when drawing in shafts to be thrown or swayed about by its load; and its feet and legs being too light to resist the wear, or exert the force necessary to steady

itself, "give out," and they become exhausted. A mule team under such circumstances will often become disheartened and lie down, and no means will suffice to restore them to a condition for exertion for that day. A heavier and

that the reason why asses are not purchased is because they are not brought to the fairs; but this reason should hardly suffice when they might easily be sought out and procured. The profit of raising these mules would then belong to ourselves. The color of these animals is very varied. Brown, black, bay, gray, white, and piebald is common, but generally they take after the sire in color, and he is always black or dark brown. Their height is from 15 to 16 hands, rarely more; and this, with their heavy bodies causes them to appear much more solid animals than the ordinary mule of greater height but less weight. Their value at the fairs is from \$200 to \$300, which is one-third greater than the value of a horse of corresponding merit.

The brown mule figured in the engraving obtained a prize at the Grand Exhibition of Mules at Niort in 1865, when she was

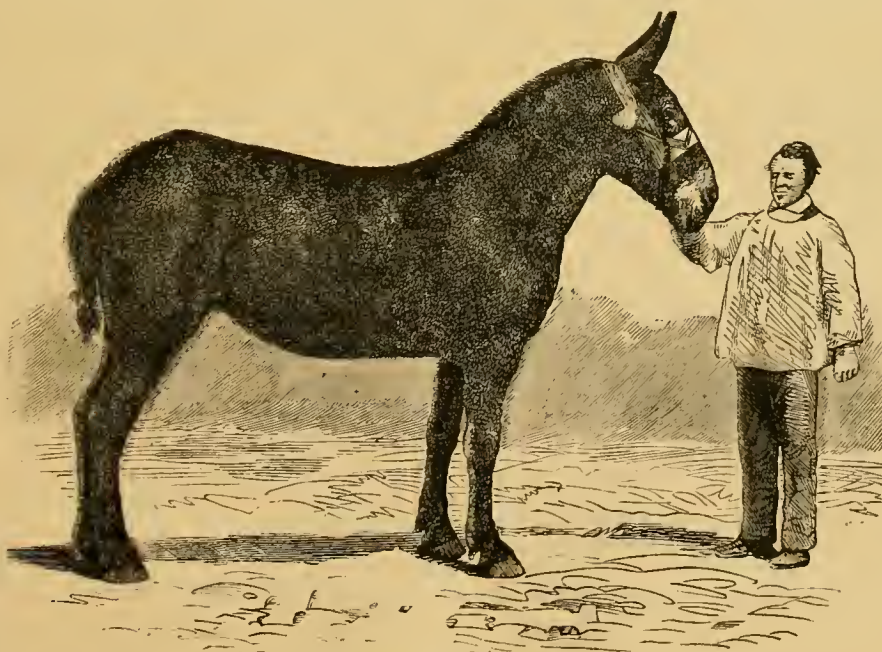
stouter-legged and broader-footed mule is therefore a valuable animal for work in wagon trains or heavy draught. The hardiness of the mule and its want of sensitiveness to affections of the leg-bones and sinews, such as spavins, ringbones, splints, wind-galls, and curbs, and others which incapacitate the more sensitive horse, render it very desirable under many circumstances. It is certain, too, that if we could procure mules free from the defects which render them less satisfactory than horses, they would be substituted for them to a large extent in many places. The importation of the Poitou asses from which

four years old, and stood 16 hands high. The gray mule shown above the brown one is said to be the best short-legged mule ever bred in this district. She is a dapple gray, five years old, and stands 15 hands and three inches. The strength of this animal is said to be enormous, and equal to that of any yoke of oxen. So far as agricultural labor is concerned, the qualifications of such animals as these are very valuable. Especially in such work as thrashing by horsepower, drawing reapers and mowers, in which a dead plodding furrow without any elasticity of draught is to be done, they would be much at home. Horses become weary under such work, and few teams can stand two or three days of ten hours' constant work each in a reaper. This sort of work, and drawing heavy loads upon the road, is exactly suitable for the animals described in this article.

HOW FARMERS ARE SWINDLED.—No. 2 corn recently fell in price to twenty-seven cents a bushel in the Chicago market, which was the lowest price touched for twelve years. Had this been a legitimate occurrence there would have been no cause for complaint, however much room there would have been for regret that the market should be so overstocked with



GRAY POITOU MULE.



BROWN POITOU MULE.

these mules are bred would seem to be a much more profitable business than that of importing the mules, which is done to a certain extent by Americans, for we read of many of them attending the fairs and shipping mules from the ports of Nantes and St. Nazaire. It is said

this kind of produce. But it was an unmitigated fraud upon the farmers, who are helpless in the hands of a crowd of speculators. A false report that a large quantity of corn in the elevators had heated and become spoiled was set afloat, and prices went down.

Walks and Talks on the Farm.—No. 117.

Tillage is a good thing. Manure is a good thing. But tillage and manure together are far better than either alone. So I said to myself yesterday as I walked across my corn field. This spring I spread a little well-rotted manure on the poorer parts of the field and plowed it in. I have cultivated the corn very thoroughly—almost excessively. The land was far from clean, and I was determined that not a weed should grow that I could reach with a cultivator. We harrowed the field four times with a Thomas harrow after the corn was planted and before it was large enough to cultivate. Since then the cultivator has been through it seven or eight times, and I shall go through it once more in August. This is pretty good tillage, and the corn on the whole looks quite well for this season; but wherever the manure was applied the effect is very decided. I do not think I ever saw so little manure do so much good. We did not put on over five tons to the acre. True, it was good manure, made from sheep, cows, and pigs fed largely on bran, and was pretty well rotted; but still I think the good tillage has helped the manure. I am sure the manure has helped the good tillage.

What we want is good manure and good tillage. And when I so strenuously and so frequently urge farmers to cultivate the soil more thoroughly I have precisely this result in my mind. I never dreamed of depending ultimately on tillage alone. I use it merely as a stepping-stone to something better. If I have given any other impression it must be because I do not write and talk plainly and definitely. But it is also just possible that some people are careless readers and uncapricious critics.

I have urged again and again the great importance and many advantages of good tillage. I have not a word to take back. I am sure that good tillage alone would add millions of dollars annually to the profits of our agriculture. Can any sane man doubt it? But I never supposed that any farmer who had energy enough to cultivate his land thoroughly would be willing to stop there. As a rule, the men who have the cleanest farms make the most manure. I know a farmer who feeds a good many sheep every winter, and makes a large quantity of manure. He has succeeded in bringing his land to a high degree of productiveness. But it is very foul. The weeds rob him of half his profits. This farmer makes all the manure he can, but does not cultivate his land thoroughly. Now the point I want to make is this: A man may make a good deal of manure and not cultivate his land; but did you ever know a man who took special pains to kill all the weeds on his farm, and get his land mellow and in the best mechanical condition, who did not aim to make and use all the manure he could? And so when I recommend good tillage I take it for granted that the extra crops so produced will, to a great extent at least, be used for feeding stock and making manure.

There is a sense, of course, in which tillage is an exhausting process. It develops the plant-food lying dormant in the soil. If you develop this plant-food and convert it into corn or clover, and then sell the crops, you impoverish the farm more than if you did not cultivate the land so thoroughly. But, on the other hand, if the corn and clover are fed out on the farm, and the manure saved and applied, the

good tillage will make the farm richer in available plant-food. This process will soon enable a farmer to double his crops and quadruple his profits.

John Johnston writes me (July 15th) that he thought until recently the wheat would be a failure this year, but that the late rains have improved it wonderfully. He incloses a head of Diehl wheat, and says: "You may be sure it is not the smallest, but I have not a doubt there are some on the outside of the piece that have nearly double the kernels, but they are out of shape as they are so full of kernels. I never saw anything equal to them."

"Mr. Sturge was here, and I showed him the head and asked him how many kernels he thought there was in it. 'Probably forty,' he said. I told him that Diehl wheat always yielded better than it looked, and that I had often counted over 50 grains in a short head. I asked him to shell out this head, and he did so, and found sixty-five (65) good plump kernels in it."

Mr. J. says that an acre of his wheat was sown after corn fodder. The fodder was carried off early last September. The land was then manured and plowed, and the seed drilled in at the rate of about one bushel per acre on the 15th of September. This wheat, Mr. J. says, "is inferior to any wheat I have raised for many years." The rest of the land was plowed and manured in May, and cultivated and harrowed twice from that time until the 15th of September, when it was drilled in with wheat at the same rate as the other. The crop on this summer-fallowed land, Mr. J. says, "I think now will yield more than any wheat I ever raised."

My own Diehl wheat has greatly improved during the last month. It is now (July 16th) dead ripe, and ought to have been cut several days ago, but I am not quite through haying, and the weather is very unsettled. The heads are full and the kernels plump, but I am afraid they will not be as white as they should be. Many farmers here are quite discouraged about raising white wheat. The millers grumble a good deal at the number of red kernels in the wheat, and will rarely pay the top price. The millers who make choice family flour want pure white wheat, and some of them are willing to pay a liberal price for it, but they say it is almost impossible to find it of the desired quality. The farmers say that the wheat itself degenerates—that in the same heads some of the kernels will be white and others red.

It is much easier to raise red wheat than white wheat; and unless we can raise white wheat that the millers will pay from ten to twenty-five cents a bushel more than they will pay for ordinary red wheat, we had better raise the latter. To do as many farmers do, sow red and white together with a considerable sprinkling of rye, is simply absurd. Such a mixture will only grade as common red wheat. For my part, I do not care for such extra white flour, but as long as there are people who want it and are willing to pay for it, those farmers who can grow choice white wheat should take pains to grow it pure and get the best price.

The same principle holds good in other things. Six-rowed barley is worth ten cents a bushel more than two-rowed. But adding twenty or thirty per cent of six-rowed barley to two-rowed will not add to its value. It will sell for no more than two-rowed. In fact, the mixture is not worth as much as two-rowed alone, for the reason that they do not malt well

together. If Col. Waring should mix what chemists term a "trace" of grease-butter with his choice, gilt-edged Jersey he would have to bid good-by to a dollar a pound.

One of the papers speaks of me as a "high farmer." This is a mistake. I neither advocate or practice high farming. I advocate *good* farming, and I do not wish to be misunderstood. There are places where high farming may be profitable. Where land is worth from \$250 to \$500 an acre, high farming—or, as I like to call it, "fast farming"—is the only farming that will pay. But to talk about high farming in sections where good land is worth only from \$25 to \$50 an acre is simply absurd. The kind of farming which I advocate, and which I am endeavoring to practice, is applicable anywhere and everywhere. I want to drain all land that needs draining—at least, all land that is under cultivation. I want to cultivate the land thoroughly. I want to get the weeds under control. I want to allow no weeds to go to seed; and I want to cause the weed seeds already in the ground to germinate, and then I want to kill the young plants. Then, too, I want to make good manure, and a good deal of it. The richer it is, and the larger the pile, the better it would please me.

This is my agricultural platform. Here I stand; and I am willing to argue the questions involved with the high farmers on the one hand, and the negligent, weed-growing farmers on the other. The Deacon does not like my position. He wants to raise side issues. He wants to talk about high wages and low prices; about cold winters and dry summers. He wants to discuss the general unprofitableness of agriculture. Except for amusement, I do not argue this question with him. He and I are both farmers, and we mean to continue to be farmers. That is settled to start with. It is no use arguing whether I could make more money as a lawyer, or whether he could do more good as a minister than he can as a deacon. He and I are both too old to change our vocations. Farmers we are and farmers we shall continue to be, and the question for us to consider is which is the best kind of farming for us to adopt. Shall we plow and sow and take our chance of getting a fair crop one year in five when everything is favorable, with a moral certainty of half crops of grain and full crops of weeds in unfavorable seasons?

The Deacon dodges this question. He knows that his system is not profitable. He is too intelligent a man to believe anything else. But still he does not change. He keeps hoping for favorable seasons. He is not willing to spend the necessary labor to clean his land. He keeps trying some method of holding the weeds in check rather than of killing them outright. If he was poor, and could not afford to wait, there would be some excuse for him.

Mr. Harmon, one of our best farmers, called to see me an hour or two ago, and interrupted quite opportunely our talk about the Deacon's farming. We took a walk all over the farm, talking as we went.

"Your mangels are capital," he said, "but there are some bare spots."

"Yes; that is where I sowed some English-grown seed I bought from the seed-store. I presume it was old. At any rate, a good deal of it failed to germinate. I sowed the mangels with a grain-drill, in rows 28 inches apart—sowing three rows at a time."

"Your potatoes look well," he said, "and the rows are very straight. You must have had an Englishman to make the furrows."

"No. I marked out the field, first, with a common marker. Then made the furrows with a steel plow, running the plow along the mark. A good English plowman would have made the rows, perhaps, just as straight without using the marker; but it is very little trouble to mark out five or six acres of land, and it insures straight rows, and, what is still more important, the rows are all the same distance apart, and the cultivator can be set wider and run closer to the plants. When some of the rows are narrow and some wide we have to set the cultivator narrow and run twice in a row."

"You do not plant in hills?"

"No; but I am not sure if it is not the better way. It saves labor in hoeing and digging, and when the cultivator runs both ways between the hills it loosens the soil all round the hill. I am inclined to think, however, that a little manure is the best method of planting."

"How long has this timothy meadow been down?" he asked.

"Eight years; but I propose to plow it this fall."

"You might have plowed it four years ago with advantage."

"It is heavy clay land, and I have been waiting until I can underdrain it. Until it is drained I am afraid to risk it with wheat. I think I shall plow it this fall and summer-fallow it next year, plowing three times, and then in August or September seed it down with half a bushel of timothy to the acre."

"I would sow four or five quarts of clover with it also. But if I was you I would only plow it once. There is considerable wire-grass in the land, and it is harder to kill than quack. If you plow it this fall, deep and well, and then cultivate and harrow it next summer sufficiently to keep down all the weeds, you will smother the wire-grass, and have a nice mellow surface for the grass seed in the fall. I have tried both plans, and think this is the better. If you plow in the spring you turn the wire-grass sod to the surface, and it will be certain to grow, and you will have no end of labor in killing it."

"Perhaps so. Still, I think if it is not plowed in the spring until after we are through corn planting, say the first of June, and then plowed again in July with the free use of the harrows, roller, and cultivator, and then plowed again in August and cultivated and harrowed thoroughly, there will not be much wire-grass left, and the land will not forget such treatment for years."

"The men are cutting wheat with a new Johnston reaper, made for the European market. I want you to see the reaper, but do not want so good a farmer to see my wheat. It is the poorest I have had for many years, and yet I summer-fallowed the field, and dressed it also with 150 lbs. of phosphatic blood manure to the acre."

"What kind do you raise?"

"The Diehl."

"It won't do," he said, "we shall have to give it up. We shall have to go back to the Mediterranean."

"Either that or farm better," I said, "and for my part I mean to stick to the Diehl and try to bring my land up to the required standard. This year my wheat is on the poorest and most run-down field on the farm, and I did not expect a good crop. But let us go and look at it."

"Taking the field together," he said, "it is

a good deal better than the average. The heads are splendid."

I told him John Johnston sent me a head that had 65 kernels in it.

"There are heads here that will beat that. Here is one that I never saw its equal."

He shelled it out and counted 88 plump kernels in it. In the meantime I shelled out another good ear and found 80 kernels in it. This shows what might be done if we had a good stand of plants, and land rich enough to produce such ears as these.

"There is one advantage in having such a poor wheat crop," I remarked. "It does not require so many men to bind, and I have sent one man to cultivate corn."

"As soon as we have finished harvest," he said, "I mean to go through mine once more."

"You believe in cultivating late, then," I remarked.

"O yes," he replied. "The year before last I cultivated my corn the last week in August, and sowed the land to wheat on which the corn was growing, and I had a good crop of wheat except on an acre of clay land. This I plowed up and planted with beans, and had 25 bushels of beans, which I sold for \$2.50 per bushel."

"Everybody," I remarked, "has gone into beans this year, and I should think it would bring down the price."

"I do not think so. Breadstuffs will be scarce and high, and there will be an unusual demand for beans."

I hope this will be so, as it will be a great help to farmers in this section. We need something to make up for the light crop of wheat.

An Example for Our Agricultural Colleges.

The Royal Agricultural College at Cirencester, in England, after the usual ups and downs of such establishments, is at last become a successful institution. Young men who study there are really taught how to combine "practice with science," and they are thoroughly qualified to become good farm managers. Farmer's sons go elsewhere to learn to become lawyers, doctors, and clergymen—here, it is their business to learn *farming*. How thoroughly they do it may be guessed from the following copy of the examination papers of Prof. Wrightson's class of this year:

"1. Furnish information on the following points regarding the College Farm: Its area; proportion of arable to permanent pasture-land; number of work-horses kept; number of laborers employed; course of cropping adopted; breeds of sheep and pigs maintained.

"2. Show by diagram the best plan of draining (1) an uniform slope; (2) a valley; (3) a valley with a flat area at the bottom.

"3. In the case of stiff soils on retentive sub-soils, at what distance apart and at what depth would you place your furrow drains? Also, what would be the bore of the pipes used?

"4. What would be about the expense of the work executed as proposed in your last answer per acre?

"5. Describe draining with the mole-plow, and say under what conditions this method may be recommended.

"6. Explain the following terms employed by writers on land drainage: 'diffluent water,' 'effluent water,' 'reciprocal action of drains,' 'water table.'

"7. Show by diagram the conditions under which a spring bursts forth from a hill-side.

"8. Under what conditions of soil and sub-soil may drains be expected to draw extraordinary distances?

"9. What circumstances influence the quality of farm-yard manure, and how is the best quality of such manure obtained?

"10. Give data which would enable you to estimate the amount of farm-yard manure which would be produced on a given farm.

"11. Explain the term 'special manure,' and state the conditions under which such manure may be used with advantage.

"12. What allowance of cake and corn were the ram tugs when on swedes (turnips) receiving in No. 15 field?

"13. What is the present condition of each section of the sheep stock?

"14. When may salt be used as manure?

"15. Explain the fact that guano is a greater favorite as a turnip manure in the north than in the south of England."

This is a list of propositions which no young man (or old one either) can answer without study, careful consideration, and familiarity with the practical operations of the farm; and such answers can only be prepared by a process which will constitute just the sort of training that any farmer would be benefited by having.

Support for a Corn-Crib.

A rat-proof support for a corn-crib or a granary is shown in the engraving. Such an article is of vastly more importance than it would seem at first sight. The depredations of rats and mice amount each year to a much greater sum than is supposed. Five per cent of the crop is not too great an estimate to set upon the damage done by these vermin to corn in the crib, while in very many barns the damage to smaller grains is of equal proportion. It is a difficult matter to make a granary or corn-crib rat-proof unless the foundations are properly arranged.



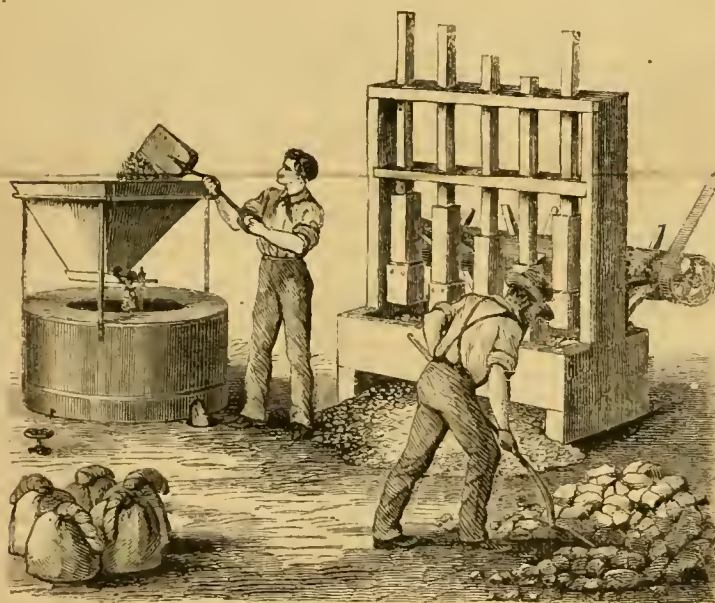
SUPPORT FOR CRIB.

With brick or timber foundations it can not be done; with caps of tin over the posts it may be done, but the projecting edges of the caps are soon knocked out of shape by various accidents, and the enemy, which watches, waits, and works while we sleep, gains admission, and before it is noticed much damage is done. But by the use of this contrivance cribs and granaries may be made completely rat-proof. The support is made of cast iron, and consists of a circular plate eight inches in diameter and half an inch thick, gradually thinning towards the edge. To this is attached a leg two inches or more in thickness, the section of which may be circular or in the shape of a cross. This leg should be two feet long, and gradually tapering from the plate downwards to the foot. Short posts or stones may be sunk in the ground where the supports are needed, and holes a few inches deep are to be drilled in them to receive the foot of the support, as shown by the dotted lines in the figure. The sills of the building are laid upon the plates and attached to them by bolts, the holes for which are shown in the engraving. The supports should be painted, and the holes in which the feet of the supports are placed should

be well pitched and caulked to keep out moisture. In case wooden blocks are used it would be well to saturate them thoroughly in hot tar, as a preservative against rot from exposure to alternations of dryness and moisture. These supports will be found very useful for other purposes; for instance, a smaller size may be placed with great advantage beneath the posts of verandas; and if used in any places where posts are sunk in the ground, they will prevent rotting of the timber, and make the building last more than twice as long. When used for square posts they may be spiked to the foot of each post by two spikes, which should be feathered on the edges to cause them to retain their hold in the timber.

A Mill for Grinding Plaster.

"A Subscriber," Hutchinson, Kansas, desires to know how to construct a mill for grinding plaster, and how it should be operated. We give on this page an engraving of a mill for grinding plaster such as is in common use. The first process necessary is to stamp or crush the stone into fragments sufficiently small to be ground between a pair of burr-stones, and this is done by means of the stamps shown in the engraving. These are put up in a stout frame of timber, beneath which there is a box provided with a grated bottom of cast iron, made sufficiently strong to resist the blows of the



STAMPS AND MILL FOR PLASTER.

falling stamps. The interstices between the bars of the grate are wider below than above, so that the broken fragments easily pass through. The stamps are put up in batteries of four or five or more, as may be desirable; five stamps, however, will break enough rock to keep one pair of stones running. The stamps are raised by means of a revolving shaft with projecting arms, which catch corresponding teeth or cams on the rear of each stamp; when raised about two feet, the stamp is released by the onward passage of the arm, and it falls of its own weight upon the rock placed beneath it. The stamp heads are of chilled cast iron, and are fastened with bolts on to the wooden guides. The broken rock which falls through the grate is shoveled into the hopper of the mill, and is ground as fine as ordinary flour. The finer it is ground the better it is as a fertilizer.

Water Bars.

"W. R. N.," Raleigh, N. C., requests a plan to fence across a stream which is subject to freshets. In the annexed engraving there is shown such a fence, or, as it is usually called, a set of water bars. There is a post on each bank of the stream. To one post the bars or rails are affixed by short chains or wire loops fastened by staples driven into each bar and the post. There are pins driven into the opposite post, upon which the loose ends of the bars rest. To the lower bar there is suspended a shorter one by means of short chains or wires. When the water rises the bars float off from the pins, and being held by the chains at their ends are prevented from being carried away. When the water falls they are replaced.

How Brooms are Made.

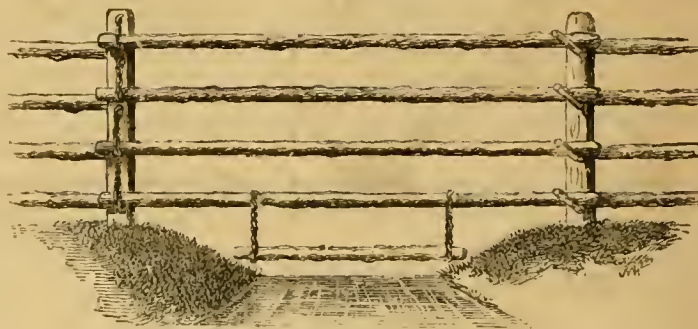
The broom manufacture is one of those industries into which a very economical division of labor is made to enter. Domestic manufactures enter into competition with such industries under unfavorable conditions. It can never be hoped that the supply of brooms nor any material portion of it can be produced in the homes of the farmers who grow the brush. They have done their portion of the divided labor when they have provided the raw material. Yet it is true that the spare hours of the winter season, when farm labors are in good part suspended, may be profitably occupied in working up some portion of the crop.

Boys and girls may give a helping hand, and earn a sum which will add a great deal to the general comfort. Besides, it ought to be a rule on every farm to produce at home, as far as possible, everything needed for home use. Home industry should be fostered and encouraged as much as possible. This was the old fashion, when our mothers and grandmothers spun and knitted and our grandfathers wore homespun. There is no good reason why a farmer's family might not turn out sufficient brooms to purchase most of the family groceries or to procure a goodly supply of books and papers. Well-made brooms are worth at wholesale twenty-five cents each. A pound and a half of brush will make a broom, and the handles and wire needed cost but five or six cents. This is the whole money outlay required. The result is that an acre of brush yielding say

600 pounds will make 400 brooms, worth \$100, with an outlay for material of \$24.

The necessary machinery is very simple, and may be adopted without difficulty from a study of those in use at the broom manufactories, and which are here described, together with the process of manufacture.

The first thing is to sort the brush into three



WATER BARS.

sizes, with straw of 15, 17, and 19 inches long respectively; rough, short, or crooked brush is used for the inside of the brooms, and is to be kept by itself. That which is longer than 19 inches is called "hurl," and is used for the largest brooms. Then the brush is cleaned from any adhering seeds or hulls or broken straw by exposing it in handfuls to a rapidly-



Fig. 1.—CLEANING THE BRUSH.

revolving drum or cylinder in the machine shown in fig. 1. In a small way this may be done by a coarse comb. The brush is then tied up in bundles, and the butts dipped into water and placed on a bench to drain, as shown in

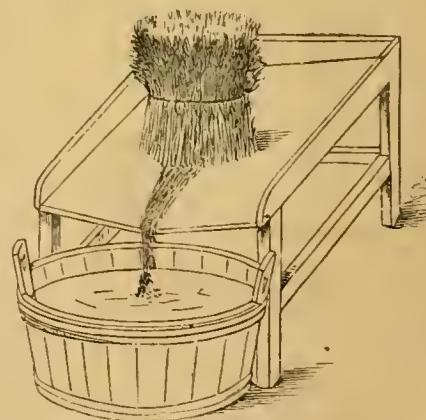


Fig. 2.—DRAINING THE BRUSH.

figure 2. The stalks are then soft and pliable, and the brush is ready for the wrapping-machine, shown at figure 3. It consists of a table with a projecting wing at the right hand. Beneath this part of the table is a barrel or socket (a) which is revolved by means of a strap

from the treadle (b). The broom-handle is placed in this barrel, with but seven or eight



Fig. 3.—MAKING THE BROOM.

inches of the butt exposed, and held fast by a set-screw. A tack is driven partly in about an inch and a half from the end, and the wire wound around it; the tack is then driven down and the end of the wire thus fastened. The handle is revolved two or three times to get a firm hold of the wire around it before any brush is put on. The wire is wound on a reel, shown in the engraving at c, passes around three pulleys, by which the requisite tension is procured, and then passes to the broom-handle. When the wire is properly fastened, the operator takes a handful of coarse, rough brush and holds the stalks beneath the wire as the handle turns, spreading them smoothly, and pounding them down with a flat pounder. This brush is the filling, and about three small handfuls are needed for each broom. The wire should be wound around the filling three or four times, and as the brush revolves the stalks are smoothed off with a sharp knife just above the last turn of the wire. The wire is then slipped off the brush on to the handle and wound around it once about half an inch above the smoothed end of the stalks. Then a handful of the sorted brush, suitable for the kind of broom to be made, is taken in the left hand,

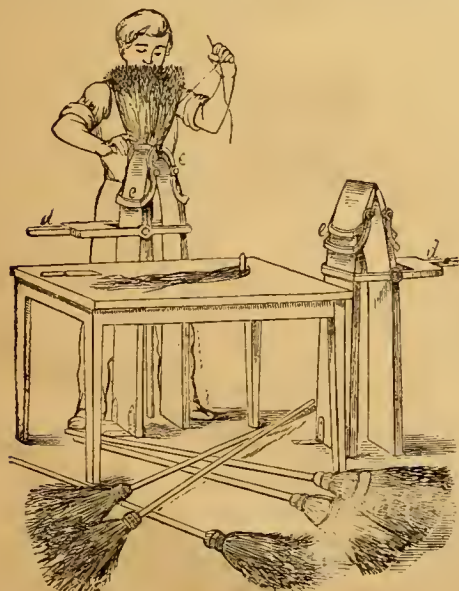


Fig. 4.—SEWING THE BROOM.

and with the knife the stalks are cut half through with a sloping cut half an inch above the straw, and the half of the stalk split off. The stalks

are then placed beneath the wire so that it may be wound exactly over where they were cut. The treadle is turned until the stalks are all bound on, when another handful is taken and treated precisely the same way, and then finally another handful. Each handful consists of six or eight stalks, and they should be placed smoothly and close together under the wire. The wire is bound evenly around the stalks until there is sufficient to hold the broom firmly together, when it is fastened with a tack as at the commencement. The pounder is constantly used to pack the brush beneath the wire and make the broom firm and hard.

It would be a good practical lesson to take an old broom to pieces while studying these processes, so as to fix them clearly on the mind. The broom is now of a round shape, and needs to be made flat and to be sewed. This is done in the clamps shown at figure 4. These are simply a pair of wooden jaws, very similar to those used by harness-makers in which the leather is held to be sewed. The broom is put into the clamps, which are pressed together by the lever which is shown projecting at the side (d). Before being squeezed in the clamps, the

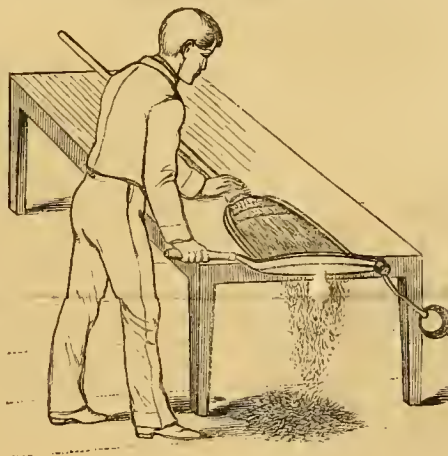


Fig. 5.—TRIMMING THE BROOM.

brush is arranged and put into proper shape. Then there are three guides, made of iron, with curved jaws, hinged on to each side of the clamp shown at e e in the figure. When these are turned up against the broom they show the exact place where the sewing should be done. A supply of twine is on the table; a length of it is taken and passed by means of a long needle through the broom, from the left-hand side, about an inch or less from the edge. The end of the twine is drawn just inside of the brush, and the twine is passed twice around the broom and drawn tight, the guide keeping it in its proper position. Then the needle is passed through and through the broom, under and over the twine each time, making stitches about an inch apart, until they cross the broom. Then another guide is turned up which reaches about an inch lower down on the brush, and another double turn of twine is made, and more stitches, and this is repeated in long-straw brooms yet once more. It is only necessary then to trim the broom smoothly, which, where large quantities are made, is done by the machine shown at figure 5; but in other cases may be done by means of a sharp knife or a pair of sheep-shears, to finish it ready for market. The brooms are packed in bunches of one dozen each by being sewed together through the brush and bound by a cord at the ends of the handles, and the manufacture is completed.

A Bowline Knot.

J. A. S., sends the following directions for making a sailor's bowline knot which will neither slip nor jam, and which makes the best halter knot or farm knot in general. In the engraving the different figures with which our

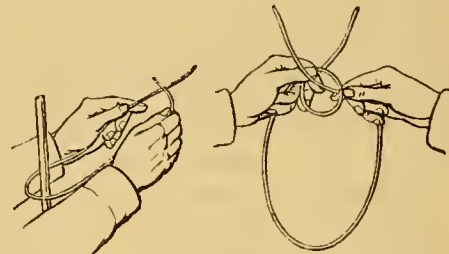


Fig. 1. BOWLINE KNOT. Fig. 2.

correspondent has favored us are represented. The directions are as follows:

Take the end of a rope in the right hand (fig. 1), and the standing part—i. e., the part that is fastened to the horse—in the left, passing the bight, or part between the hands, around the post or through the ring to which it is desired to hitch the horse. The end (held in the right hand) is laid over the other part, then the wrist of the left hand is turned and the elbow of the right hand until the position in fig. 2 is reached, when the palm of the left hand will be upward, and that hand is holding a kink in the standing part, the part of the kink nearest the horse being beneath, and the crossing of the kink held between the thumb and forefinger, the fore and middle fingers holding the kink apart, the two last fingers holding the rope against the palm of the hand. The end of the rope is found to be sticking up through the kink and held between the thumb and forefinger of the right hand, as also by the two smaller fingers against the ball of the thumb, the hand being below the kink.

Now the rope is let go with the thumb and forefinger of the right hand and seized again

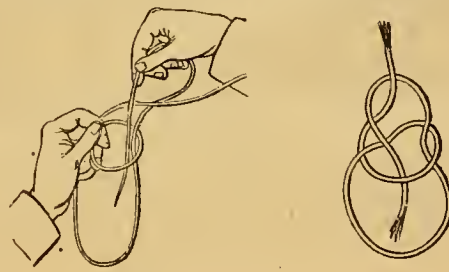


Fig. 3. BOWLINE KNOT. Fig. 4.

above the kink, and then let go with the two smaller fingers, hauling the end through until it assumes the position in fig. 3; then the right hand is carried beneath the standing or fastened part, and taking the position of fig. 4, the end of the rope is brought over the fast or standing part and tucked down through the kink, producing fig. 5.

To draw it tight the end of the rope is taken in with the part held by the little fingers of the left hand, and taking hold at "a" fig. 4 with the right hand, it is drawn gently with both

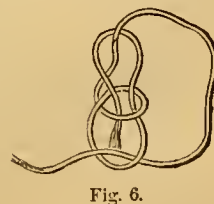


Fig. 6.

hands against the fast end and the knot is tied. To untie, the bight or loop "b," fig. 5, is slipped up over the standing part and everything loosens easily. This is the sailor's way and is done very quickly. For a slip-noose this knot is tied around the standing part instead of the post as at fig. 6.

WANT OF CARE.—Want of care is the prolific cause of accident and disease amongst stock. The master's eye or the owner's solicitude are proverbially preventives against trouble or waste; but if the master or the owner will not trouble themselves to exercise the watchful care needed, we may be sure no one else will. A careful shepherd will never bring his flock home at night without counting them and, passing amongst them, observing carefully any suspicious change or defect. In the dairy, the least falling off in the yield of a cow should be the cause of inquiry or observation until the reason is found; for that there is a reason we may be assured. A limp or a suspicious failure in the team should also be a source of uneasiness until it is accounted for; and if this habit of close scrutiny and observation becomes the rule instead of the exception there will be much less trouble and loss for farmers to complain of.

VALUE OF EXTRA FOOD.—The expenditure of money for what is called artificial food—that is, food which is not produced directly upon the farm—is generally very profitable. We have found that a few dollars thus spent in linseed or cotton-cake meal, or wheat bran or shorts for our young animals or milking stock is repaid many times. Very often a gallon of molasses occasionally purchased and sprinkled over the feed will add very much to the appetite of cows and calves; and the more we can induce them to eat, always taking care that they digest it perfectly, the more they yield in milk or butter or flesh. Nothing will sooner bring a pot-bellied, hide-bound, and scraggy calf into condition than a pint of linseed cake meal a day, and nothing adds more to the amount of cream than a quart of cotton-seed meal daily. In addition, the manure from the animals is much richer, and in that alone the money comes back again. The same with the land. 200 pounds of a good fertilizer per acre, at a cost of six or seven dollars, will often add \$20 per acre to the value of the crop.

Distributing Manure by Irrigation.

BY COL. GEORGE E. WARING, JR., OF OGDEN FARM.

A very important lesson for many American farmers may be gleaned from the English experiments in the use of sewage as manure.

Mr. Mechi still adheres to his old system of

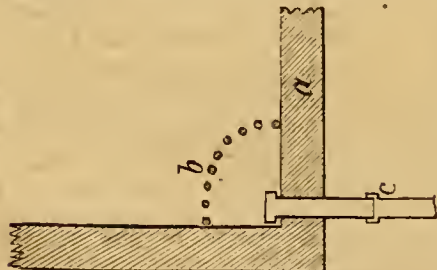


Fig. 1.—CORNER OF MANURE CELLAR.

converting his manure (or much of it) into a liquid form, storing it in a large tank where it ferments, and forcing it (by steam-power) through underground iron pipes for distribution over the land through a hose. This system is

not generally considered either economical or advantageous. The plan adopted with sewage, in all cases which came to my notice, is that described as in use at Lord Warwick's farm near Leamington.

While our climate precludes the possibility of our using winter sewage in this way, we might, in some cases, make profitable use of summer sewage if we could get it without too much cost. What most interests us in the matter, however, is the suggestion that we may

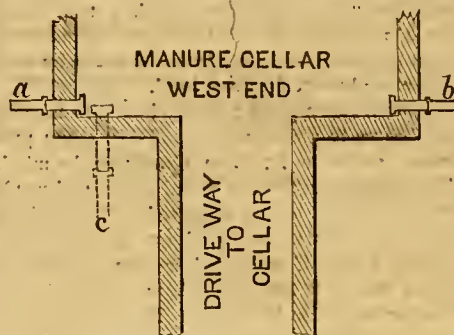


Fig. 2.—DIAGRAM OF OUTLETS.

adopt a similar means for simple water irrigation, or for the use of water as a distributing medium for manure.

I will take as an example my own case at Ogden Farm, and will assume that I had (which is not true) a stream of water at a sufficiently high level to be led into the barn cellar (40x100), which has a capacity of about 200,000 gallons. This should ordinarily be kept nearly full of water, and into it all manure should daily be thrown. Care must be taken to ventilate the cellar thoroughly with side windows, and to have the stable floor above it quite tight. Arrangements should be made to turn the stream into the cellar, or back again into its own channel at will. Whenever manure was required for that part of the farm lying low enough to be flooded from the cellar (about one half of the whole) the gate should be opened and the liquid conducted to the field by the system explained below. At the same time, enough water should be admitted from the brook to keep up the head in the cellar. This, by its flow, would make a movement in the mass sufficient to stir up the sediment and foul the outgoing water. The irrigation should be as frequent and as copious as the supply of water would allow and as the best growth of the crops required. The water alone would be very beneficial, and it would only be stronger or weaker according to the extent to which it was employed. Of one thing we might be quite sure; all the manure it contained would be distributed in the most perfect way possible, and there could be no waste. The water would be an addition to its value—there would be no deduction in any way. A vast amount of labor would be saved, and the manure would be applied at the right time, in the right way, and on the right spot.

The winter manure should be hauled, as it now is, on to the higher parts of the farm—no

water being admitted to the cellar at this season. When the growing season came on, then the crops of the lower parts would get the benefit of the irrigation. How great a benefit this would be to grass land in time of drouth need only be suggested.

The accompanying sketches will show the arrangements to be made at Ogden Farm, and will indicate a plan which, with such modifications as circumstances require, may be adopted for the irrigation of any land with sufficient slope.

Fig. 1 shows a corner of the manure-cellar with an escape pipe (valved) leading from the very bottom—allowing the cellar to be drained dry at pleasure. In front of the entrance to this pipe a screen of iron rods or wooden slats, reaching vertically from floor to ceiling, prevents solid matters and litter from choking the pipe. If this becomes clogged, it can be cleared with a rake through a trap-door in the floor above. This pipe should be used only when the water will not flow at the outlets above.

Fig. 2 shows the arrangement at the west end of the cellar, with an overflow pipe to the north and one to the south. The drive-way should be dammed up to raise the water to the level of these pipes.

Fig. 3 shows the arrangement for the distribution of the flow. A main furrow runs from *a* and *z* to *d*. This is the general direction of the slope of the land. The laterals from 1 to 18 are furrows laid on a fall of 1 inch in 100 feet. They will not be straight, but must follow the conformation of the ground, so as to preserve a uniform fall. The main furrow at *z* may be supplied either from *a* or from *c*.

The flow being let on, and kept up by a corresponding flow into the cellar from the brook, it should pass on to the end of 18. (The main furrow is a little deeper than the entrance to the laterals.) Here it will overflow the land lying below so much of the lateral as is beyond *y*. Then a gate should be set at *y*, and kept there until the land below the lateral between that

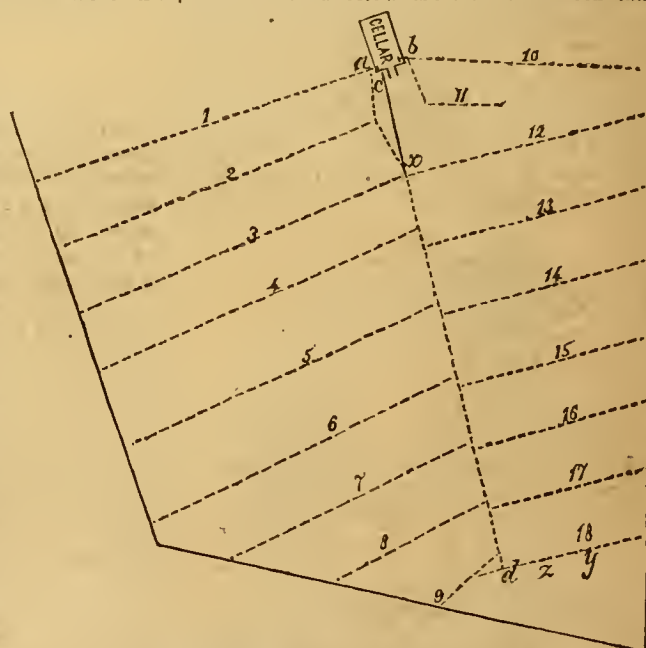


Fig. 3.—DISTRIBUTION OF THE LIQUID MANURE.

point and *z* has been sufficiently flooded. Then remove the gate to *z*. When all the land below lateral 18 has had its supply, set a gate in the main just below 17, and repeat the process with that. When the south side of the farm has been completed, the gate is taken from the main and the water allowed to flow to the end of No. 9.

Nos. 1, 2, 10, and 11 can be flushed only from outlets *a* and *b*. All the others are low enough for *c*.

Of course, any portion of the land may be flooded at pleasure, the directions above being given only as an illustration.

PROPORTION OF CREAM TO MILK.—The proportion of cream to milk yielded by cows of the various breeds used in the dairy were ascertained by experiment in England some time since to be as follows: Brittany cows, 19.27 to 22.00 per cent of cream; Jerseys, 18.65 to 20.00 per cent; cross of Jersey and Shorthorn, 17.95 to 19.05 per cent; Shorthorn or Durham, 15.32 to 18.56 per cent; Devon, 14.87 to 17.00 per cent; and Ayrshire, 13.47 to 14.84 per cent. The variations depended on the feed, which for the lowest yield was grass or hay only, and for the highest was the most abundant food of the richest character that could be procured. As a general thing, however, cream is yielded in larger proportion in our dairies than in those of England. We have been assured by Mr. Crozier, of Northport, L. I., that he has taken one quart of cream from three quarts of milk from one of his Jersey cows.

Moreton Farm.

One of the editors of the *Country Gentleman* has been on a visit to "Walks and Talks," and in the issue of that paper for July 24th thus pleasantly relates what he saw:

"During a recent social visit at the residence of Joseph Harris, near Rochester, N. Y., we made some observations in which our readers may be interested, more especially as Mr. Harris is widely known as one of our most distinguished scientific farmers, and has successfully reduced to practice the principles which he had adopted after assisting in the celebrated experiments of Messrs. Lawes and Gilbert, at Rothamstead, England, in connection with many years of experience in this country. We do not, under the above mentioned circumstances, propose to give the details of Mr. Harris's farming, but merely to note some interesting particulars connected with it.

"Moreton Farm contains 285 acres, and has been owned and occupied by Mr. Harris about ten years. When he first took possession it was in a wretchedly neglected and run-down condition. With so much to be done in the way of improvement, he has not yet reduced it to so perfect a condition as to enable him to adopt throughout a regular rotation, but much has been accomplished towards that end. Underdraining was the basis, or rather the first thing, towards improvement, and several miles of tile have been laid. The land was an exception in that region in the amount of small and large stones distributed over its surface or sunk into the soil. Many of these have been removed, and rough and stony ground changed to mellow, easily cultivated fields, and the stone placed in handsome walls as farm fences. Fine crops were seen growing on this renovated land.

"The aggressive department of the farm management at Moreton Farm is the war against weeds. Mr. H. is determined not to cultivate them. If a part can be destroyed, according to the practice of imperfect farmers, there is no reason why the remainder may not, according to the determination of thorough farmers. We saw no weeds lining the fences, so common elsewhere. A fifteen-acre corn field which we

examined had been harrowed four times over the whole surface when the corn was small with a smoothing-harrow, and the man who had the field in charge was then running the one-horse cultivator the fifth time between the rows. Such thorough work leaves little chance for vegetable intruders.

"The underdraining is done by the hired men at seasons when other work is not pressing. The tile is laid from three to four feet deep in most instances. Sometimes it can be laid only two feet, but deep draining is found to be best, the soil being mostly of rather light character, with occasional portions of heavy loam. The surface is undulating, and irregular lines are therefore generally necessary for the mains. About seven miles of drains have been constructed, and the descent being quite moderate, large tile are required for the main drains, varying from four-inch pipe to five-inch, double five-inch, and in some cases ten inch in diameter—which discharge nearly full in the wettest weather. The result of underdraining has been very satisfactory. In one place, on low land, was seen a luxuriant crop of oats and peas growing together; a similar crop last year yielded 86½ bushels on an acre. In another place we saw a remarkably dense and satisfactory crop of clover, the result of drainage and thick sowing.

"Those who have read Mr. Harris's 'Walks and Talks on the Farm,' in the *American Agriculturist*, will remember his occasional allusions to 'the Deacon's' management on an adjoining farm. The Deacon does not believe in all the new notions, and repudiates underdrainage. On riding past his wheat field, we estimated the crop at three bushels per acre of wheat and more of weeds. Underdrained, judging from the appearance and quality of the soil, it would probably have yielded at least twenty to twenty-five bushels of wheat. It must be conceded, however, in order that strict justice may be done to the Deacon, that wheat through this part of the country was unusually poor this year from winter-killing, and that he was not alone in a light product. His management generally, however, is not of such a character as to give him heavy farm profits, and he has to depend on other sources, such as agency and commission business, for comfortable living.

"Among other objects of interest on Moreton Farm is a fine Northern Spy orchard of 220 trees, about twelve years old. This sort is usually long in coming into bearing, and these trees do not yet afford full crops. Last year they gave forty barrels, and this year promise more. The land is in pasture, and is kept grazed short by Cotswold sheep, besides receiving top-dressings of manure. The trees were in medium or good thrifty condition, the annual shoots eight or ten inches long. A few trees in cultivated ground grew rather more vigorously. The sheep are in the orchard in the daytime, and keep the grass very short; at night they are allowed better feed in another field. The fruit grows fairer or freer from the codling-moth each successive year, as these animals reduce their numbers by eating the small fallen apples. The sheep never attack the bark of the trees.

"The largest receipts from the farm are obtained from the sale of Essex pigs. Mr. H. prefers this breed to all others, giving better side-pork than the Berkshires, and not being so restless. He has at the present time about 150 animals, which have so high a reputation that orders come in as fast as they increase.

Last year his sales amounted to \$4,000. His treatise 'On the Pig' gives therefore his own experience.

"On the whole, the farming at Moreton appears to be quite successful. The profits, other than from the sale of pigs, are a fair return from the land; and the constant increase in the value of the farm is by no means to be overlooked. It was bought at a comparatively low price, in a run-down condition, and with the improvements has cost \$80 per acre, or \$22,000 for the farm. It is fairly estimated, according to the market price of adjoining land, at \$150 per acre, or over \$40,000. Mr. Harris occupies the dwelling which he found on the place, lives as a comfortable country resident, enjoys the products of the farm and garden, and the domestic comforts which may be gathered around a pleasant rural home.

"A ride of several miles in the neighborhood exhibited many objects of interest, this part of the county being nearly level or slightly undulating, with occasional views of great extent and magnificence, embracing many miles of cultivated farms, the distant city, and a long horizon of the blue waters of Lake Ontario. Many pleasant looking homes indicated the competence of their owners; some farms, however, showed the imperfect management to which they were subjected, and briers, elders, and burdocks lined the fences. These were the exception, while some others were models of neatness, the fields exhibiting heavy crops. We were struck with the hundreds of acres of beans which were seen in a ride of a few miles; this crop, we were told, often yielded twenty-five bushels per acre, occupied the ground for a comparatively short space of time, and brought cash for the product. Some, however, have gone into the business of bean raising without knowing, by experience, the requisites for success, and will probably be glad to withdraw after they have learned that skill and experience are required for all operations."

Breaking Colts.

The education of a colt should commence as soon as it is weaned. Even before this time it may learn much, although the main business of its life can not well be undertaken earlier. From the very first it may, however, be taught to become fearless of those around it, and made familiar with them, and be reduced to discipline; and if no tricks are played with it, and it is not teased or trifled with, it will learn to have confidence in its owner, and will generally grow up free from vice and ill-temper. Before it is a year old, it should be broken to the halter, taught to stand when tied, and to lead. These lessons should be given gradually, and for a very short time on each occasion, until the animal understands exactly what is meant. When it leads quite easily without dragging on the halter, it may be taught its paces. The first lesson is to walk. Gradually the pace should be quickened, until it can walk quite briskly. For a farm horse, this is the most important thing to be learned. A horse that can walk with ease four miles an hour is worth more than two that can walk but two miles in the same time; for it will do as much work with half the feed as two horses of the latter kind will perform. There must be no hurry in all this teaching, but at the same time it should be made a business of, and the lessons be given regularly. When it will lead steadily, the halter may be taken by the end and the colt taught to lead

with it hanging loosely. All the different movements which it will have to perform in after-life should be taught now, before it is allowed to trot or run, that is if, as we now understand, it is to be a work-horse. It may be taught to do all this at the word of command as easily as an ox can be, without any need of touching the lines. A team of horses thus educated are exceedingly useful on a farm, and will very much lighten the labor of plowing or hauling loads. The most useful team we ever possessed or drove was one that would plow a back-fur-

would afterwards depreciate the usefulness and value of the horse should be now "nipped in the bud." If he commences to hang out his tongue, carry his head improperly, or contract other unpleasant habits, they must be reformed at once—gently and without irritating him, but patiently and persistently. Any strange thing should be brought up to him squarely in the face, so that he may not learn to shy, and he should be permitted to examine it leisurely. But we have never found when a colt has become thoroughly acquainted with us that it has

ends are hitched into the harness, and the traces are hooked on to the cross-piece. The harness, back-straps, and breeching should be carefully fastened before starting, and the poles may then be drawn much more safely than any wheeled vehicle. No pressure can come suddenly on the breeching, and the colt can not back, for the butts of the poles penetrate into the ground and prevent it. After sufficient practice with this arrangement, a light-wheeled vehicle may be used.

During this course of lessons the colt should be taught to allow anything to come in contact



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ILLUSTRATIONS OF THE MANNER OF TRAINING COLTS.—Drawn and Engraved for the American Agriculturist.

row across a field and turn at the headlands without the lines being touched, and could be used to load logs upon a wagon or sled as easily as any yoke of oxen. They had been taught to work thus when colts. When this has been well learned the colt may be taught to trot. It should be taken by the halter, close to the head at first, afterwards at the end, and encouraged to increase its speed. By being taught at first to go gently, it will learn to trot without breaking up; if it breaks, it should be stopped, brought back to the starting-place at a walk, and made to commence again. At this time a little reward will be found to encourage the colt very much, and nothing will please it better than a small lump of sugar. We may here mention that a colt may be taught in this manner to come from any part of a pasture-field at call, and it will do it without fail afterwards if taught at this time. A piece of bread, a little salt, sugar, or a piece of apple given each time, or even a friendly pat or a caressing word, will be a sufficient reward to keep up the habit. Much loss of time afterwards will be prevented.

The next thing is to accustom the colt to the bridle and the saddle. All bad habits that

ever shown any surprise or repugnance to anything we may have brought up to it in the hand or on the arm. When confidence has been established, fear seems not to occur unless under some extraordinary circumstances, and they of course must be guarded against. A colt that has been properly handled may be taught in two or three hours to stand near a passing locomotive without showing any fear if its owner is at its head. But such lessons should be given with extreme caution, and when carefully given, although a colt may be seen to tremble when the locomotive approaches, it will nevertheless soon learn to stand quite still without drawing on the halter if its owner is near it; such confidence in its owner has a horse that has been kindly used.

After the harness and saddle can be put on without the least flinching or apprehension being shown, the colt may be hitched up. It is not well to use a buggy at first, nor anything with wheels. The best thing is a frame of light poles cut square at the ends; two of the poles should be 12 feet long and one six feet. The shorter pole is lashed with cords across the longer poles at about three feet from the butts. The other

with its heels without resisting it, and also, should the lines get beneath its tail, to allow them to be removed without fretting or kicking. Of course, much depends on the disposition of the animal whether or not all this teaching shall be successful in a shorter or longer time, but we have found that in most cases a horse's disposition turns out to be very much what it is made to be by his training in his youth. The main points referred to in the foregoing article will be found illustrated by our artist in the annexed engravings.

It will be noticed probably that no mention has been made of the whip or of punishment. We firmly hold the whip to be useless, and punishment to be totally uncalled for and injudicious at all times. Further than this, the whip is so often made an instrument of severity and torture to a willing but incompetent horse—rendered incompetent often by the stupidity or ill-nature of its driver—that in our own practice we never allowed a hired man to carry one, nor did we ever ourselves find occasion to use one; and we would urge the propriety of forever banishing the whip as an instrument of punishment from the farm.

The Golden-Spurred Columbine.

More than twenty years ago the writer in his wanderings in the wilds of Northern Mexico came across a Columbine which at the time

between this and *A. carulea* are not very marked, but it is one of those cases in which other than purely botanical characters may have weight. The plant comes from a different geographical range, grows taller, flowers nearly

the shopkeeper which he thought were the *lavenderest*. If we were asked which was "the lavenderest" flower we knew we should say the *Amsonia*. The books all have it that the flowers are "pale blue," but this does not pro-



GOLDEN-SPURRED COLUMBINE.



AMSONIA TABERNAEMONTANA.

seemed to him not only the most beautiful Columbine but the most charming wild flower he had ever seen. How he searched for seeds—for being a thousand miles from anywhere roots were of no use—how sadly he contented himself with specimens for the herbarium, and how he filled his hat-band and the button-holes of a red-flannel shirt with flowers are matters of pleasant recollection. He supposed, of course, he had a new species, and was not a little disappointed to find that both Torrey and Gray considered it as a yellow variety of *Aquilegia leptocera*—what is now known and cultivated as *Aquilegia carulea*, the Rocky Mountain Columbine. As the plant is destined to be a popular one, we give it the name of "Golden-Spurred Columbine." That most industrious collector and excellent botanist Dr. C. C. Parry was fortunate enough to obtain seeds, and the plant has been for some time in cultivation in the Botanic Garden of Harvard University, and is sparingly introduced from there into European and a few American gardens, and is noticed in foreign journals with high commendation as *Aquilegia leptocera flava*. This is not the place to discuss botanical nomenclature and synonyms. Suffice it to say that after cultivating the plant for several years, and comparing it with the Rocky Mountain Columbine (*A. carulea*), Dr. Gray has concluded to describe it as a new species, *Aquilegia chrysantha*. The botanical distinctions

a month later, and blooms for two months continuously; these peculiarities, added to its full yellow color, seem to warrant it to rank as a species. Like the Rocky Mountain Columbine, it has very long and slender spurs, often over two inches in length. The engraving, which only gives the form of the flowers and smaller than life, can not convey an idea of the beauty of the plant, with its foliage set off by numerous graceful golden-spurred flowers. It is perfectly hardy, even more so than the Rocky Mountain species, which in some soils being injured by the heat of summer, is not sufficiently strong to stand the winter, a difficulty however which has never been within our experience.

We could not mention this fine Columbine without reference to the Botanic Garden, and we especially request our readers not to annoy Prof. Gray or Prof. Sargent by making applications for seeds, as it is impossible for them to answer such demands. We learn that seeds of this plant from other sources will be offered by some of our leading seed-dealers this fall, and they may be obtained in the regular way.

The Amsonia.

There are several flowers which are not very showy that we like to grow on account of their peculiarity or oddity. It is told of an affected young lady that in selecting gloves she asked

perly describe the color. Bluish gray, which is just lavender color, would be a better term. The engraving gives a top of a flowering stem of about the natural size. A well-established plant throws up numerous stems two to two and a half feet high, with leaves of variable shape, and each surmounted by a loose cluster of flowers that are delicate in form as well as in color. The botanical name of the plant is *Amsonia Tabernaemontana*. *Amsonia* commemorates a gentleman by the name of Amson, and the other name another person by the name of Tabernaemontanus. As this pretty native plant, which is found in Illinois, Virginia, and southward, is very well provided with names, we think that *Amsonia* will do for its common as well as its botanical appellation. It belongs to the Dogbane Family (*Apocynaceae*), of which our native Indian Hemp, the Oleander, Periwinkle, and other cultivated plants are members. The *Amsonia* is of the easiest cultivation in ordinary garden soil, requiring only to be divided when the clumps get too large.

CORN-MEAL AND CURCULIO.—A correspondent of the Ohio Farmer states that he kept a plum-tree free from curculios by sprinkling the ground under the tree with corn-meal. This induced the chickens to scratch and search. The meal was strewn every morning from the time the trees blossomed until the fruit was

large enough to be out of danger. The consequence was that the fowls picked up the curculios with the meal, and the tree being saved from the presence of the insects was wonderfully fruitful.

A Base-Burning Water-Heater.

BY PETER HENDERSON.

For many years a great want has been felt for a better means of heating greenhouses, or rather conservatories, attached to dwellings. The space to be heated is usually so small, that the ordinary hot-water boilers in use for large operations have been found by amateurs too complicated, and to require too much attention. Then when the common smoke-flue was tried corresponding difficulties arose, it requiring nearly the same attention as the more expensive boiler. Occasionally these conservatories are heated by registers from the furnace heater, just as the ordinary rooms of the dwelling; but I have rarely seen any so heated wherein the plants looked well, it being difficult to get the register so placed as to diffuse the heat evenly. A new base-burning water-heater has been invented by Hitchings & Co., the well known greenhouse-heating firm. There is nothing new in the principle, nothing to patent, I believe. It is simply making the ordinary base-burning stove heat hot water so that it will circulate in iron pipes and heat a small greenhouse or conservatory attached to a dwelling or otherwise, exactly as our larger boilers do, which are not usually made on the base-burning principle. The patterns they have thus far made (shown in figure 1 and in section in figure 2) are 42 inches high and 21 inches at base, and are powerful enough to heat a greenhouse 10 feet wide by 20 feet long, or about 400 square feet of glass surface, taking into account the front and ends. The complete cost of heating, including boiler, pipes, and fitting up, will range from \$150 to \$200. The care neces-

sary in the management of this base-burning water-heater is exactly the same as that required for an ordinary base-burning stove, and it may be safely left twelve hours without attention, keeping a temperature for the plants of from 50° to 60° at night, which is about what is required for a general collection of plants. Figure 3 shows the boiler placed alongside the kitchen range, being in a basement and one story lower than the conservatory. It can either be used in this way, or placed in the conservatory itself as desired as will best suit. It must be borne in mind though, in constructing a conservatory, that it must be placed where a chimney can be used, as of course an outlet

Notes from the Pines.

I have heard old-fashioned people use "comeuppance" to express compensation or what is due to one. I have had a "comeuppance," and it is a just one, if it did result in the loss of

A VALUABLE SHRUB.—A few months ago I had a warm word of praise for the Double-flowering Crimson Thorn. If there was a plant

upon the place that I petted and admired and gloried in it was that. Some of the older branches had a disagreeable cocoon upon them, and the new growth had multitudes of plant-lice. It is the way with all Hawthorns to have all possible insects, a peculiarity which, if nothing else did, quite unfits them for hedge plants in this country. Something must be done, and recollecting that I had on hand an untried syringe that the maker had sent, and that there was in the box some insect-killing soap, I told the boy to get the syringe and use the soap according to directions. He did so, and whatever may have become of the insects the Hawthorn is dead past all re-

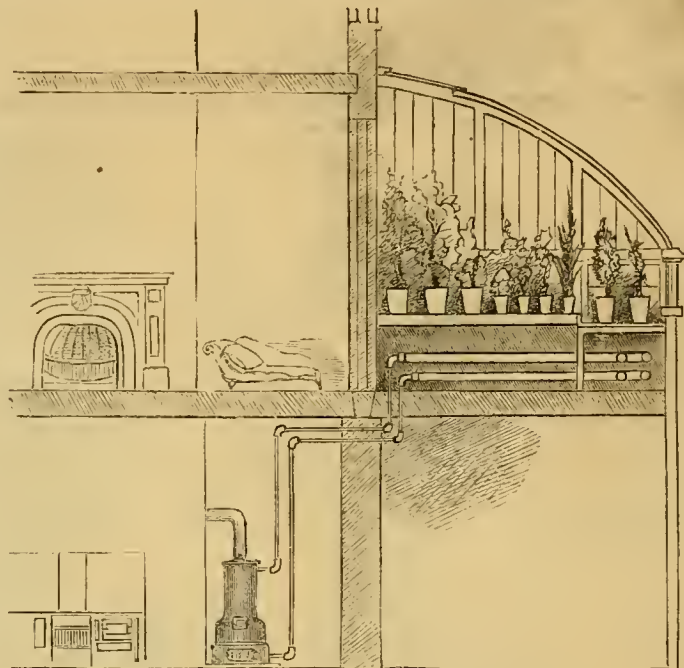


Fig. 3.—SECTION OF HOUSE AND CONSERVATORY.

must be had for smoke exactly as in any ordinary room where any stove whatever is used.

I am personally exceedingly grateful to Hitchings & Co. for giving us this contrivance for heating. It is a question on which my advice has been asked in scores of instances, and I have never before been able to give a satisfactory answer. I presume the *Agriculturist* has had many similar inquiries, but I doubt much if all its horticultural savants have been able so well to solve this difficulty as is now certain to be done by the base-burning water-heater.

FRIGHTENING STRIPED BUGS.—A correspondent of the *Rural New Yorker* thinks that a gentleman in Dansville, N. Y., is entitled to a pension from cucumber-growers for his "discovery" of a method of frightening away striped bugs. He suspends a quantity of paper by means of a string to a stick which is set in the ground at an angle of 45 degrees. The

paper being moved by the wind frightens away the bugs. This is one of the oldest methods for driving off the bug, and the writer hereof saw his father use it at least forty years ago, and it turns up in the papers every few years as a novelty.

suscitation. On the whole I am rather glad of it. It serves me right. If I am particular about any one thing, it is never to take any preparation, nor to let any one in whom I have any interest take any, unless I know exactly what it is composed of. More than this, I will not allow any "cattle food" or any medicine to be given to a horse or chicken unless I know its precise ingredients. I have ridiculed the English fondness for Gishurst's Compound, Fowler's Insecticide, Phytosmegma, and all that quackery, and here in a moment of haste, to do the thing that was nearest at hand I used a soap that I knew nothing of, and killed my pet plant. I hope if I ever do such a foolish thing again I shall suffer worse loss. How any one can use a secret preparation on man, beast, or plant I don't understand. I stick to the doctrine, and let the dead shrub stand as a warning.

PERENNIAL PHLOXES is a term applied by florists to the garden varieties of *Phlox paniculata* and *P. maculata*; but all our Phloxes except *P. Drummondii* are perennial, and the term as applied to these is a misnomer. They are popularly known, in some localities at least, as "French Lilacs," and the dealers make two sections, calling the taller growing ones "paniculata," and the dwarfier ones "decussata," which is a convenient division. In each section new sorts are offered each year, and it is useless to designate varieties where nearly all are good. They vary from pure white to deep crimson with all kinds of intermediate markings and shades. They make a fine show at a season when flowers are not very abundant, and are perfectly hardy. There is one precaution to be observed in growing them, and that is to not have them too crowded, or they will mildew, and by the time the flowers are ready to open the foliage becomes unsightly.

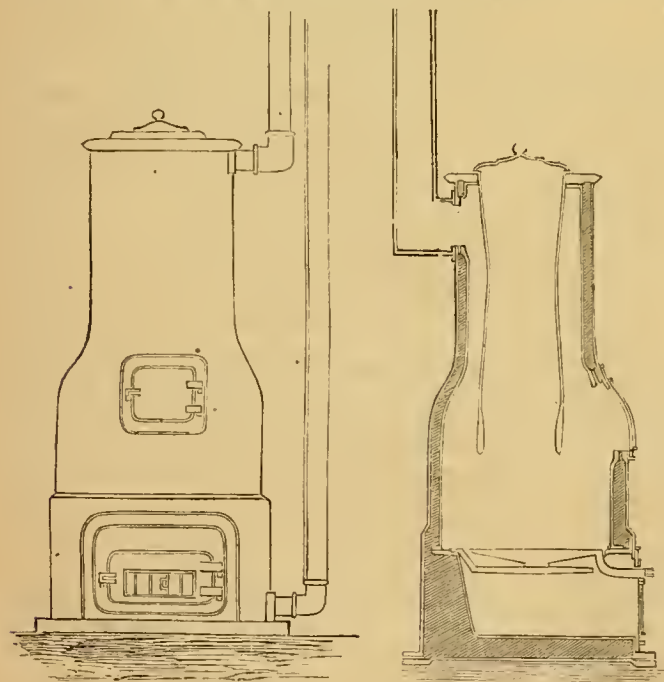


Fig. 1.—BASE-BURNER.

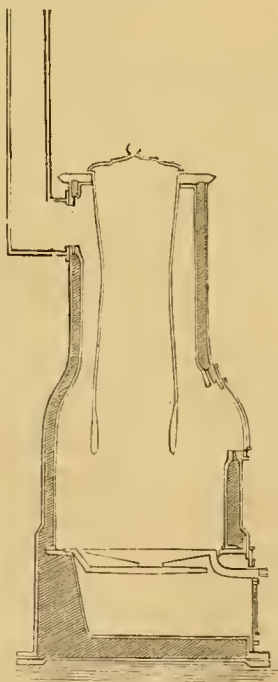


Fig. 2.—SECTION.

sary in the management of this base-burning water-heater is exactly the same as that required for an ordinary base-burning stove, and it may be safely left twelve hours without attention, keeping a temperature for the plants of

EARLY SWEET-CORN.—A year or two ago I mentioned a local variety of corn which is known here as Van Riper's, Cadmus's, Tom Thumb, etc. It is probably the earliest corn with a good-sized ear that goes to the New York market. Seeing the "Early Minnesota" in Mr. Vick's catalogue, and finding it offered by no other seedsman, I sent for some. It does not make quite so large an ear as the local variety referred to, but it is greatly superior to that in sweetness and its equal in earliness. It is a dwarf variety, has two and often three ears to the stalk, and as an early corn I have not, take it in all respects, seen its equal. It is not as sweet as the Early Narragansett, but its ears are twice as large; nor is it as sweet as some later varieties, but it is early and good—and until I find something better shall stick to the Minnesota as the best early corn.

VARIEGATED FOLIAGE in out-door culture is sometimes very satisfactory, but it is oftener otherwise. Our hot summers put these variegated leaves to a severe test, and those that we admire when grown in the greenhouse very often lose their markings when placed in the open border. This applies not only to the plants with colored leaves like the varieties of *Coleus*, but to those in which the green leaves have white or cream-colored markings. Among the tender plants with variegated green leaves none hold their markings more persistently than *Abutilon Thompsonii*, which I find admirably adapted for growing in clumps, as it bears cutting well, and may be shaped to one's fancy. Among

HARDY HERBACEOUS PERENNIALS those with variegated foliage are quite rare. None that we have seen equals the variegated Comfrey, *Symphytum peregrinum*. This was noticed and figured in the *Agriculturist* several years ago. It is bright and pleasing from early spring until late autumn, and never shows any signs of deterioration.

TREES WITH VARIEGATED FOLIAGE, as a general thing, are not a success. I have a variegated Horse-chestnut which I would like to exchange for a plain one. The leaves are well marked for a week or so after they appear in spring, but they soon have an ill-defined and unhealthy look. A variegated *Salisburia* or *Ginkgo* was introduced some years ago, but it is difficult to find one now, and so with many other "novelties" in this line. The best deciduous tree with variegated leaves that I have seen is the

VARIEGATED BOX-ELDER—*Negundo aceroides*.—However it may be later, this holds its markings well into July. The ordinary box-elder is one of the most graceful of our smaller trees. The variegated one has the same pleasing habit, and the foliage is boldly marked with white; and the effect of a well-grown specimen against a background of evergreens, as it may be seen at Wellesley, is one of the most beautiful objects imaginable.

BIRDS have heretofore been very scarce at my place, but this year they have appeared in great numbers, much to my gratification. The present abundance has direct relation to the sudden disappearance of a horde of worthless cats that formerly prowled about.

The Future of Strawberry Culture.

The experience of the season just past has convinced strawberry growers, at least those in the Northern States, that they must give up the

cultivation altogether or take measures to be independent of the weather. Another such season as the one just closed would bring disaster, if not ruin, to hundreds who have capital invested in strawberries and other small fruits, as well as in baskets and other accessories for taking the crop to market. The only way in which the strawberry grower can be fairly sure of a crop one year with another is to irrigate. One of the largest growers in the vicinity of New York recently told us that the amount that he lost by this year's failure of the crop would more than pay for permanent irrigating improvements. Like a wise man he goes at once to work to provide a supply of water that will render him, so far as that goes, quite independent of rains. This is what strawberry cultivators must make up their minds to if they expect anything like certain returns for their labors. In a spring like the last, water for irrigation will decide the question between a profitable crop and a total failure, and in ordinary seasons, when there is so much rain that the plants do not really suffer from drouth, we feel sure that the advantage derived from the application of water just at the time it is needed will be such as to pay a handsome return upon the investment. In many localities the preparations for irrigation need be but slight—a dam and a few water-courses being all that are required. In other cases water must be pumped by windmills into a reservoir. Even in the most difficult cases the outlay will not be very large. It should be recollected that no half-way measures will answer; the ground must have a thorough soaking. The watering had better not be undertaken at all if it is to be only a mere wetting of the surface.

Insecticide.—(Oldsoldierum.)

BY PHEBE ANN.

Dear Mr. Agriculturist: Let me give you my recipe for a most effectual insecticide: One wine-bottle, 30 oz.; Old soldiers (cigar stumps), any quantum; Aqua pura or rainum to cover the stumps. Put the stumps in the bottle, and the water on the stumps. Of course this won't exterminate a greenhouseful of insects, but for the window-gardens, the hanging-baskets, etc., it is just the thing. Put in more stumps and more water daily, so as to keep your bottle full. The longer the solution stands the worse it is for the health of the insect. Apply with a brush, a little tay watering-pot, or a spoon if you choose.

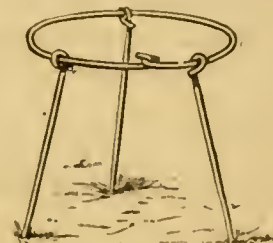
There is a double satisfaction in the use of this preparation—viz., the utilization of Adolphus Henry's cigar stumps, and the opportunity of witnessing how insects will die before they will get accustomed to the use of tobacco.

MORAL.—What a pity some men are not insects.

A Support for Plants.

We were quite amused to see figured in the *Gardeners' Chronicle* (England), as a "support for strawberries," a contrivance that we have used these many years, though not for strawberries. It shows how similar needs will lead to similar inventions. In England various contrivances are in use for keeping strawberries up from the ground, and there are several patented "strawberry crinolines." Some ten years ago, having to support some spreading plants, we put galvanized wire together in the manner here figured. This kind of frame is quickly made,

and is very efficient; besides, it does not make the show that some other plant supports do. The larger Phloxes, the tall-growing Sedums, and many other things get very top-heavy, especially in rainy weather, and a girdle of this



WIRE SUPPORT.

kind keeps the clumps in shape and contributes to the neatness of the garden. Of course the taller the support the stronger must be the wire.

Paris-Green for Insects.

Paris-green, a very poisonous compound of arsenic and copper, has been found to be the only effective weapon with which to fight the Colorado Potato-beetle. We have often spoken of its use and given directions for operating with it. Since its introduction to kill the potato-bug its use has extended, and it is now employed to kill other insects that infest other plants. For several of the pests that destroy melons, squashes, and others of that family, it has been found especially efficacious. The old method of applying Paris-green, by diluting it with ten to fifteen parts of plaster, flour, or other inert powder is now abandoned by many, and the poison is applied by means of water. We think that this method of using it was first proposed by our friend D. C. Richmond of Sandusky. He stirs a table-spoonful of the green in a pailful of water, and applies with an ordinary watering-pot. The poison is not soluble in water, but is only diffused through it, hence it should be thoroughly stirred, and the liquid applied to the plants before it has had time to settle. Many are afraid to use Paris-green on account of its highly dangerous character. It should, of course, be kept in such a manner that no accident can result from it. As to the safety of eating vegetables the foliage of which has been treated with the poison we think there need be no apprehension. Chemical examination has failed to detect any poison in potatoes the vines of which had been poisoned.

Foreign Horticultural Items.

THE VITALITY OF POLLEN.—The *Revue Horticole* cites an instance in which pollen collected in 1867 was found in 1872 capable of fertilizing the pistils to which it was applied. The plant upon which the experiment was made was the *Ceratozamia Mexicana*, one of the Cycas Family, in which the staminate and pistillate flowers are borne upon separate plants. The only care taken with the pollen was to preserve it from moisture.

PRESERVING TOMATOES.—The *Bulletin* of the Horticultural Society at Meaux (France) gives an account of the method of preserving tomatoes by M. Alexandre, who exhibited to the Society in January, 1873, tomatoes put up in August, 1872, and which were perfectly preserved. Sound and not over-ripe tomatoes are

picked, and the stem carefully removed. They are then packed in any vessel, a glass jar preferred, until it is two-thirds full; water is then poured over the fruit, but not enough to fill the vessel, and on the water oil (olive) is poured to form a covering about half an inch thick. The oil should not come quite up to the edge of the jar, in order to allow of the expansion and contraction by changes of temperature. We give this as we find it, and feel about it much as did the New Hampshire dominion who was preaching upon the power of faith to remove mountains. Looking out of the window towards Monadnock he said: "Monadnock is a pretty solid old mountain; but, my friends, it will do you no hurt to try to move it."

THE WOOD OF PAULOWNIA.—*Paulownia Imperialis* is used to a considerable extent in this country as an ornamental tree. Its rapid growth and the beauty of its flowers in spring commend it; while its enormous bunches of dark brown seed vessels, which remain for a year or more, are against it. M. Carriere, of the *Jardin des Plantes*, has recently called attention to the value of its timber. He thinks that the extreme lightness of the wood has caused it to be neglected. A well-dried branch of a young tree is scarcely heavier than cork. The wood from an old tree is more compact, and is susceptible of a fine silky polish. The striking peculiarity of the wood is that it does not shrink, nor warp, nor split, even when green or however thin it may be cut. The Japanese use it in thin veneers for the same purposes that we use pasteboard—to make boxes, etc. M. Carriere thinks that when the value of the tree becomes better known it will be planted along roads and such places. The Paulownia grows readily from root-cuttings, and may be raised from seed, and is worthy of the attention of those engaged in tree planting at the West.

BATH ASPARAGUS.—The young flower-stalks with the undeveloped flower buds of the *Ornithogalum Pyrenaicum* are sold in Bath under the name of "wild asparagus." This *Ornithogalum* grows wild in abundance in some parts of England. We know its congener, *O. umbellatum*, as the Star of Bethlehem, found in old gardens, and more or less naturalized. The Gardeners' Chronicle says it is the best substitute for asparagus yet tried; "better by far than the Hop-tops of which our Belgian and Dutch friends make so much, and better than any 'green-corn' we have yet tasted, in spite of what our American friends may say." That is a little cool—the idea of an Englishman, even though he be an editor, pretending that he knows anything about green-corn!

• **THE SHAH AND HORTICULTURE.**—That ill-

mannered Oriental that has made England happy by leaving it has been turned to account by several horticulturists. One fills a whole page of each of the London horticultural journals with an account of the floral decorations at Buckingham Palace "in honor of His Imperial Majesty the Shah of Persia." A table decoration in the "private rooms appropriated to Royalty" on the occasion of the Shah's visit to the Crystal Palace is minutely described in one journal, and another informs us that it should have stated last week that the bouquets at the state ball in honor of the Shah were by Mr.



DOUBLE POINSETTIA PULCHERRIMA.

Wimsett. Several nurserymen and florists get a fine lot of advertising, so the visit of the Shah has done a little good.

PROPAGATING IPECACUANHA.—The attempts to cultivate Ipecac in British India promise success. It has generally been grown from root cuttings, but we learn that a cultivator in Sikim has succeeded in striking plants from a single leaf. We are not surprised at this, as Ipecac under almost any circumstances is pretty sure to come up.

"OUR PEARS."—L. Van Houtte, the celebrated Belgian nurseryman, announces a work with the title "Nos Poirées." It will be in French and English, and give colored plates of 50 varieties, and wood-cuts of 39 others, which will include about all that can be ranked as first-class.

ABUTILON THOMPSONI.—This finely variegated Abutilon is said by the Gardeners' Chronicle to be only a form of the well known *A. striatum*—commonly called "Flowering Maple"—with its leaves blotched and marbled with yellow.

A New Double Poinsettia.

Every one familiar with greenhouse plants knows the *Poinsettia pulcherrima*. Botanists now call it *Euphorbia*, but it will probably retain the old name of Poinsettia among florists. In this plant the inconspicuous flower clusters are surrounded by several floral leaves or bracts, each three or four inches in length, and of the most intense scarlet imaginable. When we say that this new Poinsettia has not only the original series of bracts, but that the center, ordinarily occupied by the flowers, is filled up with hundreds of smaller bracts upon short stems, diminishing in size until the smallest are only an inch long, every florist will see that here is a novelty indeed. This remarkable plant was discovered by that prince of collectors, Mr. Roezl, who found it in a small Indian village in the Mexican State of Guerrero in May last. He modestly says that no botanist or florist would believe his description of this magnificent plant; but he has brought dried specimens, which we have examined, and are quite sure that he is within bounds when he states that what we may call the "flower cluster" is often 14 to 18 inches in diameter and about six inches high. Mr. R. states that the smaller bracts are scarlet tinged with violet, and that the flowers in Mexico last from December until April. The original Poinsettia is a wonderful plant, with the leaves near the flowers taking on all the delicacy and brilliancy of petals, and we now have a sport in which the flowers themselves are superseded by clusters of bracts, making it about as different from

the normal sort as a cauliflower is different from a cabbage. In our reduced engraving we can only give a general idea of a cluster, but a careful examination of the dried specimens shows it to be no exaggeration. This will certainly take a high rank for conservatory decoration, especially as it holds its color—we can hardly say bloom—so long, and for florists and bouquet makers the clusters of small and brilliant bracts will be invaluable. The large bracts of the old sort can only be used in large bouquets and decorative pieces, while this will allow the same brilliancy to be imparted to smaller work. A house filled with the ordinary Poinsettia in full perfection forms the most gorgeous displays of color we ever saw, and we can hardly imagine the brilliancy that would be presented by an equal number of this new kind. Mr. Roezl informs us that he has placed the small stock that he succeeded in saving of this, the most remarkable of his many valuable contributions to horticulture, in the hands of our veteran florist Mr. Isaac Buchanan of this city, who will send it out in due time.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

Fried Potatoes.

The name Fried Potatoes of course means potatoes that are fried, but how different the article in different places. The elements, so to speak, potatoes and lard, are the same everywhere, but in one case we get a disagreeable fat-soaked slice and at another a real delicacy. Certain hotels and restaurants make a specialty of fried potatoes, and every one has heard of Moon's Saratoga potatoes that are eaten as a luxury as one would eat pop-corn or bon-bons. The Saratoga and other choice fried potatoes are apparently without grease, with a crisp surface, a mealy interior, and altogether delicious. "Why can't we have such?" asks Pater-

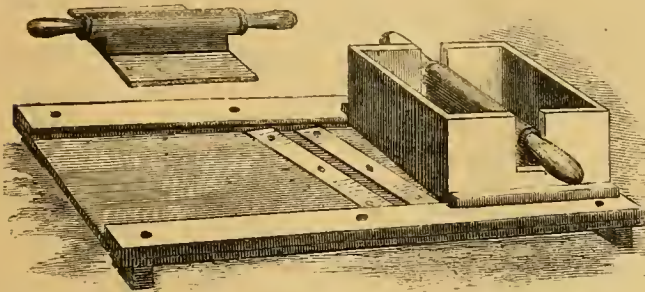


Fig. 1.—POTATO SLICER.

famillias when he returns from a visit to the city or a watering-place. The good wife might answer that he could have just such if he would go to the trouble and expense. The first essential is to have the potatoes all sliced of an even thickness. This in large establishments is accomplished by means of the apparatus shown in figure 1. A board has a knife fastened in it after the manner of a sour-kront cutter or dried-beef slicer, the edge of the knife placed far enough above the level of the board to give the required thickness. The peeled potatoes are put in a frame which slides back and forth over the knife, and this has a follower (shown

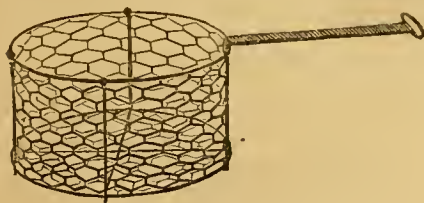


Fig. 2.—WIRE CAGE.

at one side) to keep the potatoes in place. By means of this a large quantity can be rapidly sliced and with the greatest uniformity. The next requisite is a kettle with an abundance of very hot lard, and the next a wire cage like that shown in fig. 2. The sliced potatoes are placed in the cage, plumped into the hot lard, and at the proper instant, which can only be learned by experience, they by means of the cage are all withdrawn at once. A few shakes free them from all adhering fat, and if the operation is properly done the potatoes may be served on a napkin without greasing it. All these are necessary in order to have fried potatoes in perfection. We have had satisfactory results from



Fig. 3.—CRIMPED POTATO KNIFE.

carefully slicing the potatoes with a knife and letting them drop into ice-water; taking out a handful at a time, putting them into a towel, and giving it a few jerks to dry them, and then popping them into fat, from which as soon as done they were removed by a large skimmer. Then another portion was done. The use of ice-water tends greatly to

preserve the crispness. The restaurant of Madame Monquin in New York city is a great resort for artists, and the Madame is celebrated for her fried potatoes which, probably in deference to the artistic tastes of her visitors, she serves in an elegantly crimped form. The knife shown in figure 3 is the style that she uses, and it slices the potatoes in such a manner that when fried each slice is crossed by several crisp bands. Of course, great excellence in this as in many other matters is only possible where the operation is done upon a large scale, but by taking proper pains the home-made article can be greatly improved.

Home Topics.

BY FAITH ROCHESTER.

WHAT SHALL A YOUNG WOMAN DO FOR A LIVING?—Much is said upon this subject now-days, yet I am asked to say more. Henrietta does not know what in the world to do to earn money, and money she must have. It will not do to remain dependent upon her father, who works too hard now in the effort to support his family. Her mother does not need her help, as there are younger sisters old enough to do the home chores. Henrietta is free to confess that she wants a good deal of money; and wishes to feel that she has a perfect right to it, or is under obligations to no one for it. She says she wishes she had it, but she really dreads to set out to earn it for herself; for she does not find herself fitted for any business, and she can not find in herself a special attraction to any particular kind of paying work.

This young woman will do pretty well as a specimen of the average young girl, and I have not the least inclination to laugh at her unambitious confessions. I think it would be a misfortune to the race if the women generally turned as naturally to business and the pursuit of wealth and fame as men do. We love it in them. We see its fitness in the general economy. There is much talk now about educating young women as well as young men with reference to some particular business or profession, and it is hard to see that anything better can be done at present. But all of this talk gives me the heart-ache, and when I look at my own little daughters I am moved to confess this heart-ache; for I think that if all of us who feel a secret misgiving as to the fitness of "business" for women, and of women for "business," would confess it openly, it would go far toward dispelling the clouds that envelop the whole question. I don't want to be counted among those women who have become the severe critics of their sex, and who persist in trying them by the standard of the masculine nature and then declare them "wanting." It is easy to see that there is a great deal of shirking duty and unfaithfulness to engagements among working people, but I find it in both sexes. When one thinks how differently man and woman stand related to the outside world as laborers and providers in those happiest of all human relations, the conjugal and parental, one feels how much harder it must be for the feminine nature to bind itself to steady daily manual or even intellectual labor, for woman's best and most characteristic work is of another kind. Alas! It must be done by a large majority of women, and we who have daughters should see to it that our girls, as well as our boys, are fitted by the training we give them to earn their daily bread whenever it becomes necessary or expedient for them to do so. Young girls must face this necessity bravely, whether they have any ambition for a "career" or not. They have come into a world where each one must do a part or become a hindrance to the rest, and work of any kind, faithfully done, will prove a blessing to the sincere soul.

I like Miss Alcott's story—"Work"—because I think it "true to nature" that Christie should not speedily find some great work that would make her famous among women; but that she should try different things as they presented themselves to her when waiting, making some blunders, and meeting the trials of sickness and lack of work and discouragement generally, and finding out at last that it is better to be a good, true woman than to make any great noise in the world. I commend this book to Henrietta, but I suspect that the most helpful book for young women yet written is Mrs. Diaz's "Lucy Maria." This judgment is given, however, before reading the whole story.

The majority of women who must earn their own living turn to the needle, the school-room, and the kitchen, and I think it the most natural thing in the world, since it is so plain to them that if they should find their conquering hero and marry him, and have a home and family of their own, all that they have learned and practiced in their vocation as seamstress, teacher, or housekeeper may be very helpful in the new experience. There is a complaint that the ranks of sewing women and female teachers are crowded, but it is hard to find skillful and painstaking seamstresses, and the high prices they command when found, above the pittance earned by the average sewing woman, show how scarce they are. We need more "live" teachers, too. There is no probability of there ever being a glut in that market though every vacancy in the schools should have a hundred disappointed applicants. But the teacher's work is one for which a person ought to have a decided genius. There is certainly a demand for kitchen labor, but it is usually hard work, and not attractive to American girls at present. Educated American girls do enter upon the work sometimes, bravely meeting or defying the prevailing laws of caste, but I think they usually find it a pretty hard road to travel. Few of our girls are physically fit for the household labor of a family where only one servant is kept. I have had considerable opportunity to see this from the servant's standpoint lately, and I see that even the strong Swede and Norwegian servant girls soon break down or lose much of their inherited strength after they come to this country and go out to service. Sometimes the housework for a family is pleasant, healthful, and remunerative; and the only hard thing about it then is that invisible but quite perceptible barrier that caste sets up between mistress and maid, and which will remain, I fear, until the golden rule has been more perfectly expounded by the public teacher and shall come to be practiced by us all. Henrietta might do many worse things than to fill the place of a faithful housemaid.

There is a demand for skillful nurses for the sick, and the wages are said to be good. The work is sometimes easy and pleasant, sometimes hard and very disagreeable. Some course of training is necessary, but a girl really in earnest could soon work into a good position in that vineyard.

I do not need to mention all the kinds of work that women may do with propriety and profit. It often seems to them that the fact that they are women keeps them out of lucrative situations, and no one can settle just how much that has to do with it until some other questions are settled, or rather some experiments tried; for instance, the effect of the ballot in woman's hand, perhaps, and more especially the effect of a style of dress that does not hinder the working woman both physically and mentally.

THE NEW DRESS REFORM MOVEMENT.—Speaking of woman's dress, let me express a little of the joy and hope a working woman feels on hearing of the new movement for a reform in woman's dress. The new movement is unlike the old one in almost every respect, and I believe it will be unlike that in the rapid and complete revolution it will soon work in the department of fashions. The leaders in the work do not seem to be as sanguine as this, nor do they seem to aspire to be leaders. They only lead as President Lincoln did, going ahead as the masses behind press them up.

The shame of woman's dress is too great to be borne in silence longer, and cultivated women in the most intelligent circles are diligently searching for a better way. Ladies of different cities are consulting together over this important matter—a healthful, untrammeling, and beautiful costume for women. I have read the essay that Miss Elizabeth Stewart Phelps presented to the New England Woman's Club, afterwards published in the *Independent*; also the report of the chairman of the Dress Committee appointed by that club, and I am very glad about it all.

ECONOMIZING SPACE.—A line from "Aurora Leigh" pops into my head as I write "economizing space" after speaking about woman's dress—something that Romney said to Aurora, I believe, about leaving her room to swing her "ample skirts of womanhood."

Our ample skirts have long required more room to swing without fretting their wearers by their constant catching and brushing things over when we find ourselves in narrow quarters.

Some of my readers may find it necessary to live in few and rather crowded apartments. In such a case they appreciate the tricks that enable them to keep their comforts and conveniences about them without being too much cluttered up in their arrangements.

CLOSETS or wardrobes are sometimes extemporized by turning piano or organ boxes up on end and giving them a curtain door, with a shelf or two if there is room. I have seen a large dry-goods box set up on legs, bringing it up high enough for convenience, and leaving space underneath and behind the curtain drawn in front of it, to keep boots and shoes. I have seen a pretty toilet table made of an empty barrel set right end up, and covered with a semicircular board cushioned and draped neatly so as to conceal the barrel, which was packed with clothing not needed at that season.

TRUNDLE-BEDS are not entirely out of use, and they may be made to do excellent service. I remember now that Miss Beecher recommends them in her "American Woman's Home." They may shove under a large bed the long way of the bed, or may shove in from the side. They are easily made even by unskilled carpenters who have any knack in that line. The legs must be very short, and on castors. It is convenient to have the trundle-bed made long enough for a grown person. Then mamma and the baby can occupy it, while papa does his best to keep another child upon the higher bed covered during the night. Fathers learn to appreciate a mother's cares while engaged in that way. The trundle-bed must not be made up and shoved under too early in the morning. The bedding must be well aired first. Such a bed should not be used if the room is very small and close. The more persons sleeping in the room the more fresh air is needed. I wish every human being could have a whole bed in a large private room, at least when desired; but it can not be so, and I am glad we have such nice extension lounges. We have them in various styles, and can have a tidy lounge for the day's use turned into a large comfortable bed for the night. Ours only cost four dollars, and pulls out like the one described in the *Agriculturist* lately. It has an open-work head-board and foot-board. A movable screen to use with it is desirable; but we will speak of that again.

Hoop-Skirts.—Several correspondents have written to show how wall-baskets of various kinds can be made out of the springs of hoop-skirts, and some have kindly sent us drawings. We have seen these baskets frequently, and do not regard them highly. They, when at their best, look "hoop-skirty," and as there are several better ways of making wall-baskets we do not reproduce the designs. A wall-basket to hold newspaper, or even waste-paper (which no wall-basket should be used for), should have an air of solidity and strength which those made of skirt wire can never present. Whatever pains may be taken with them, they look

light and flimsy, as they really are. We must await some other suggestions.

Who is to Blame?

Nobody is to blame. Yes, everybody is to blame. In fact, this question, as usually asked, is a foolish one.

Good sense dictates that we should seek out the cause of each disaster, and by correcting the fault there prevent repeated trouble. But this disposition to hunt out some particular individual and heap upon him the responsibility for any catastrophe is somewhat diabolical. No honest-hearted man or woman believes that "a blunder is worse than a crime." Search out the exact weak spot if you choose. Point out the precise mistake upon which the disaster turned, but treat it as a simple mistake, remembering that "to err is human; to forgive divine."

Have you seen how the blaming disposition works in a family? It sets every one upon the defensive, even the youngest child who can talk plain. "I didn't do it!" "I didn't!" they exclaim as soon as any accident happens. Then each begins to criminate some one else. Whew! These are the fumes from the "pit." Home and heaven are not at all alike where the blaming spirit is rampant.

See those children running around the corner of the house to giggle and dance unheard and unseen. "Good!" says one, "father broke it himself!" "Careless child!" says another, mimicking his father's tones and manner. "He ought to have his ears boxed, to make him more careful," says a third. And these children are supposed to be under excellent "government," they are so obedient and respectful to their father's face. They only bide their time. Contempt and bitterness rankle in their hearts, and as soon as they dare, won't they "show him"? Every little blunder of theirs is pounced upon, and the little victims are blamed unmercifully. They learn to watch their critics with savage eagerness to discover faults and mistakes that may equal their own.

It doesn't pay. We all make mistakes. We all do mischief when we don't mean to. When Bridget, the cook, or when pinafored Mamie breaks one of your best dishes, you may be sure she is sorry, and her penitence is about in proportion to the largeness of your forgiveness. The more sure she is that you will not love her less, the more she is grieved to give you trouble.

Don't ask "who is to blame?" Sometimes you may ask "How did it happen?" but usually it is quite as effective to gather up the pieces, only saying that you are "sorry, but it can not be helped now;" and then you may say cordially, "I am sure you will try to be more careful after this." At least try this way, and watch as you have opportunity the results of these two methods.

RELL.

Work for the Girl who Expects to Marry.

Almost all young girls, I fancy, expect to have husbands and families some day. Why should they not? That is a part of their true woman nature; and I, for one, think it a pity that such a wholesome hope should so often fail of fulfillment. It is only a part of a woman's mission on earth, to be sure, to fill the position of wife and mother, but it is a part that is secondary to no other part. Marriage is by no means a state of unmixed happiness. Almost all married women pass through severe trials of one kind or another, but there are usually some very precious compensations.

I mean the girl who is "engaged," of course; but any remarks I am about to make need not exclude those maidens to whom the "possible he" has not yet appeared. These latter need not go very briskly about the preparation of their wedding *trousseau* just yet, nor need the engaged damsels if they are already well clothed. It is a pity and a shame for a young woman to weary and vex herself over ruffles and folds, and tucks and trimmings, for weeks and months before her wedding-day. If

she will avoid the vulgarity of a "splendid" public wedding, she can escape a world of trouble in the millinery line. About all that I have no particular advice to give. I want to speak of something more important, and I will tell what first set me to thinking seriously about it.

I went to visit a dear old school-mate for a few days. We had been very intimate as school-girls, and now we were both engaged (at least tacitly), and we talked together about our hopes and plans. My friend displayed to me her treasures in the way of a wedding outfit. She was a teacher, and was earning and doing everything herself, and I was amazed at the amount of work she was doing. Counterpanes, bed-quilts, carpeting, clothing, and in every possible "odd moment" elaborate tatting, which was then "the rage." It had never occurred to me to get "such a ready" as that. Neither of us expected to be married very soon, and I was just going on with my general after-school-day education and employments, but was half-unconsciously engaged in taking notes, especially of domestic life. I had not thought of making a particle of trimming. After I left my friend her case worried me, and several months afterward I summoned courage and told her just how it all seemed to me. I thought she was wearing out her health and frittering away her mind, so that I feared her lover would find that they had not been keeping pace with each other when next they met, and would have reason to feel disappointed in her. I begged her to read good practical books on physiology and hygiene, and learn first of all to take care of her health; and then to take time for reading and broad thinking, and fit herself to be an intelligent companion for the best kind of a husband. My friend thanked me for the letter, but said it came too late, as what I feared had already come to pass.

I know those girls who toss their heads and declare that *they* are never going to marry—not they. Well, then don't, my dears, until you are so inclined. But it will do you no harm—on the contrary, much good—if you, along with the girls who do expect to marry, will fit yourself to live the life of a healthy, sensible, useful woman—and that is the best outfit for a happy marriage. Learn to support yourself in some way. Learn how to take care of yourself and others, whether sick or well, and value skill in all housewifery arts. If you will also study the natures and needs of children, you may one day be very thankful that you did so.

Do you want a rule for happiness in married life? I know of none better than this, Let each try to make the other happy. In other words, "Study the things that make for peace."

RELL.

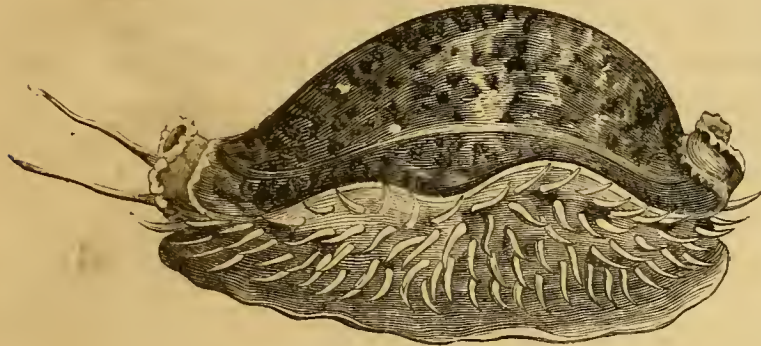
WASHING MILK DISHES OR "TIN THINGS."—I was somewhat exercised in mind by directions that I lately read in a farmer's paper for washing dishes. The writer bids us wash our milk-pans, etc., first with boiling suds, then rinse them in boiling water, and then "wipe them with a damp cloth." She says she can not tell the reason, but she finds that if tin things are wiped with a perfectly dry cloth "there is a stickiness left behind which soon becomes a sourness." I think I can tell her the reason. It is because the cheesy part of the milk has been scalded on to the tin, and is only taken off (and but partially then, I am afraid) by the cool, damp wiping cloth. I think that most good housekeepers prefer to wash the milk-pans first in a water below scalding heat. It is very common in good dairies to wash them first in cold water (which does not remove the cream) then in hot suds (which does), and then in a clear hot water rinse, wiping them or setting them in the hot sun. Since reading the article referred to I have tried it many times, and have never found that the cleanest and driest of wiping cloths left any stickiness behind; but I never wash dishes in scalding water. I see people pile their dirty dishes into the dish-pan and pour boiling water over them, and I feel sure that there will be some "stickiness left behind." Warm water, but below the scalding heat, is best, unless your dishes are soiled principally by fat and butter. Everything but grease scalds on instead of off.

ANNA.

BOYS & GIRLS' COLUMNS.

Sea-Shells—Cowries.

The more beautiful sea-shells are everywhere prized as ornaments, and it is no rare thing to find in far inland homes a collection of various kinds. These are often kept as precious mementos of friends who "went to sea" and never returned. We never see a collection of these shells upon a mantel-shelf far, far from the seashore but we think of the story they might tell could



A COWRY SHELL AND ANIMAL.

they do anything but "buzz" when held to the ear. The cowries are among the most common of these shells, and they are also among the most beautiful. Their form is pleasing, the polish of the surface is perfect, and the coloring, not only in the spots that mark the surface of the different kinds but at the under side of the shell, is of the most charming kind. How many who have these shells and prize them among their household treasures, ever think that each one has been the house of an animal as much as the oyster-shell is the house of the oyster? Yet not only is this true, but had there been no animal there had been no shell. The beautiful shell, with its enameled surface, its play of colors, its pleasing shape, is the product of an animal that some might consider repulsive in appearance. By a process as slow and as little observed as the growth of our own bones has the slimy mollusk been building up the beautiful shell. The animal has done it for its own protection—for a place of retreat into which it could draw its soft body and be safe from the attacks of all enemies. We have given an engraving of the cowry—both shell and animal—so that when you admire the beautiful sea-shells, and put them to your ear to hear the sea roar (a tin one would do as well for this), you may think that you are indebted for your pleasure to a very humble, slimy animal that lives and enjoys itself in the tropical seas, and one that is as much a part in the great system of Nature as those who make more noise in the world.

Something about Insects.

It is always pleasant for us to know that our boys and girls go about with their eyes open, and it is also pleasant to have them, when they come across objects that they do not know about or can not find out about, come to us for help. Insects, especially the larger and more showy ones, are sure to attract attention, and we give here engravings of two that have been sent us, they being found in almost all parts of the country and having a rather interesting history. Do you know all about the changes of insect life? The main story is told in a few words, but it is subject to many variations. So let all of you recollect this short account of insect life. In the first place there is the egg. In a few days, it may be weeks or even months, the egg is hatched, and out comes what is popularly called a "worm," but it is better to call it a grub or caterpillar. This "worm" is properly called a larva, and its chief business in life is to eat and grow. Some live on leaves, others find both home and food by boring into the stems of plants,

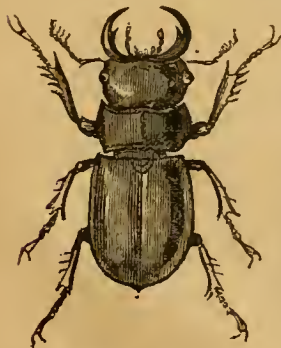


Fig. 1.—STAG-BEETLE.

they live in the ground and feed upon roots, or they pass their days in woolen goods, leather, or other animal mat-

ter. This larva keeps on feeding and growing, throwing off its old skin when it gets too large, and wearing a new one that it has already prepared, until it attains its full size. This generally takes but a few weeks, but sometimes years are required for the larva to make its full growth. Sooner or later it stops eating, and generally becomes quiet. Sometimes it wraps itself in a silken covering, sometimes in a coffin of earth, and then in other cases the outer skin hardens and forms its sleeping case. Whatever form it may take on it is called a pupa or chrysalis. After a period of quiet that is often death-like the pupa awakens, the coverings are burst, and the

perfect insect or imago comes out. It may be a beetle, a butterfly, a moth, a "miller," a two-winged fly, or other insect. With wonderful modifications this is the general course of insect life. First the egg, then the larva, next the pupa, and finally the perfect insect. So when you see a butterfly or a beetle you see the result of many changes, and can know from its appearance but little

of what it has done in its earlier life. When the June-bug or May-beetle, as it is variously called, comes buzzing into the room and bobs its stupid head against the ceiling, you have nothing to tell you that this is the perfect state of the same pest that has been destroying the strawberry roots and cutting off the roots in the grass-plot. To come to the insects that have been sent us. Figure 1 is the Stag-beetle, also frequently called the Horn-beetle, although it is not in the proper sense of the word a "bug" at all. It is over an inch long, and from its size as well as its large jaws, which are capable of giving a pretty hard pinch, it is quite sure to be noticed. Perhaps you do not care about the scientific name for it, but it will do no hurt to know that entomologists, those who make a study of insects, call it *Lucanus Dama*. In its larva state it lives in the roots of old apple-trees and similar places. Figure 2 is a larger and more noticeable beetle. You will at once when you catch one, as you may happen to on trees or on the sides of buildings in the summer months, say "Oh! what eyes!" The beetle is of a grayish black color, with two very large velvety-black spots which are mistaken for eyes, but they are only ornaments. Eyes are in the head, and if you look you will find them, while these spots are on the chest and are not eyes at all. If you should catch one of these fellows, and they are harmless, lay it on its back and see what happens. A click and a bounce, up goes the insect several inches into the air and alights on its feet. We can not now describe the peculiar "spring-back" by which it does this, but the trick is characteristic of a number of our beetles, mostly smaller than this one; hence they are called click-beetles or spring-beetles. The grubs (larva, plural of larva) of some of them are our most destructive enemies, and known by the popular names of "cut-worms" and "wire-worms"—names that, by the way, are also applied to the larvae of other and widely different insects. The larvae of the one figured are not very troublesome, and they are not very numerous. They live for the most part in half decayed trees, especially in old apple-trees. The entomologist's name for this beetle is *Alaus oculatus*. We must apologize to the young friends who sent these insects for the long delay in replying, for we have had the engravings ready for nearly a year, but could not make room for them before. To those who wish to preserve beetles, we may say that the best way is to put them into alcohol, whiskey or any other strong alcoholic liquid. We may say something at another time about "setting them up," as it is called, for final preservation; but they will keep for any length of time in alcoholic liquids. Butterflies can not be preserved in this way, as the beautiful markings upon their wings would be destroyed. The best way to kill these is to put a few drops of chloroform upon them and set them to dry in a natural position by means of pins. They must be kept in boxes secure from dust, mites, and moths.



Fig. 2.—SPRING-BEETLE.

Aunt Sue's Puzzle-Box.

ANAGRAMS.

- | | |
|---------------------|-----------------------|
| 1. A new gold deck. | 6. Pride's hope. |
| 2. Strange dress. | 7. Balance rest. |
| 3. Deacon N., sir. | 8. Neither can I. |
| 4. So inspired. | 9. Oh! mean pen. |
| 5. Deprive him so. | 10. Mac's nice crust. |

CROSS-WORD.

My first is in finger but not in thumb.
My next is in cherry but not in plum.
My third is in old but not in new.
My fourth is in church but not in pew.
My fifth is in gun but not in sword.
My sixth is in whisper but not in word.
My seventh is in wall but not in fence.
My eighth is in dollar but not in pence.
My ninth is in mask but not in face.
My tenth is in charm but not in grace.
My eleventh is in silver but not in gold.
My twelfth is in new but not in old.
My thirteenth is in grate but not in coal.
My fourteenth is in heart but not in soul.
My fifteenth is in song but not in ditty.
My sixteenth is in pain but not in pity.
My whole, we read, in early youth
Was bold enough to tell the truth. G. W. S.

ALPHABETICAL ARITHMETIC.

O U O) S M H E L I (I L L B

U L D

B O L E

B B O U

B B M L

B B O U

L D I

O U O

B U B

P I.

Od dogo ot rony mynee hatt eh yam hemoce ousy infred.

NUMERICAL ENIGMA.

I am composed of forty-two letters.
My 26, 2, 4, 33, 14, 39, 9, 29 is a bird.
My 41, 11, 15, 19, 6, 38 is powerful.
My 35, 17, 32, 24, 1 is to delineate.
My 31, 13, 8, 3, 22, 37, 20, 12, 40 is a quadruped, also an aquatic bird.
My 30, 7, 16, 34, 23 is a tame fowl.
My 27, 36, 38, 10, 21 is an impression.
My 25, 5, 18, 42 fragments.
My whole was a literary sensation of 1871. BEAU K.

RIDDLE.

I wait on the King, or the Queen if you please;
I am under your eye, you can turn me as ease.
JES.

ANSWERS TO PUZZLES IN THE JULY NUMBER.

NUMERICAL ENIGMA.—Geography.

CROSS-WORD.—San Francisco.

BLANKS.—1. Knew, gnu, new. 2. Rode, road, rowed.
3. See, sea. 4. Cent, sent, scent. 5. Rain, reign, rein.
PUZZLE.—Spear: from which may be made ape, peas, pears, ear, asp, rap.

POSITIVES AND COMPARATIVES.—1. Ham, hammer.
2. Stream, streamer. 3. Sow, sour. 4. Hop, hopper.
5. Sum, summer. 6. Buff, buffer.

GOOD ADVICE.—Begin at the last letter, and read up and down from right to left:

Hope on, hope ever, oh! never despair;
Be busy, be cheerful, and drive away care.

PL.—An Irishman meeting another asked him what had become of a mutual friend. "Arrah, now, my dear honey," answered he, "Paddy was condemned to be hanged, but saved his life by dying in prison."

ALPHABETICAL ARITHMETIC.—

207954163/4609

(Key: Coldstream.)

AUNT SUE'S NOTICES TO CORRESPONDENTS.

I have received several letters concerning the geographical prize trial, requesting answers in August; but the questions came too late. The Puzzle-Box for September has to be completed on the 20th of July. Those letters enclosing postage-stamps were, however, promptly answered by mail. There may still be time for you to revise your lists before the 20th of September.

Two or more rivers and lakes having the same name will only count as one.

If there be only one letter of a kind in the mountain; two of that same kind can not be used in lake or river.

G. F. S.—Pray don't "try for the prize" if it be at all fatiguing (I shall have one list less to examine); the occupation is intended for your amusement, not ours.



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RURAL STRATEGY.—Drawn and Engraved for the American Agriculturist.

BESSIE BENNETT.—I never "got fired" of the children's letters. Bless their dear little hearts! I am always glad to hear from them, even though they send me but one answer to one puzzle. Give my love to C. and to his little mite of a "sweetheart," "four years old."

T. K. S.—The J. in the signature to number four is obviously a misprint; it should have been an I.

Thanks for puzzles, letters, etc., to Ernest N. L., G. F. S., Tommy Ilawik, Frank A. M., Jessie May Flower, Belle, and to all the "Mountain" eers.

Puzzlers will please specify whether they wish to have their contributions published in *Heath and Home* or in the *Agriculturist*.

Aunt Sue's address is P. O. Box 111, Brooklyn, N. Y.

Mysterious Noises.

I reached home quite late a few evenings ago. The blinds were closed, and as I entered the darkened room I heard a "chip-chip-chip," faster than you can repeat it. The sound had a regular metallic ring, and I surely thought it was the lawn-mower. Why, is John mowing at this late hour? I thought, and opened the blinds to inquire, but there was no man nor mower to be seen. As I closed the blinds, "chip-chip-chip" it went again. Here was something mysterious, and had to be looked after. I traced the sound to the chimney; the blower being up at the grate made the sound seem at a distance, but here was the source of it. What do you think I found? First some egg-shells, then a half-round basket of twigs, evi-

dently a nest, and then two poor half-fledged birds that in their distress made the chip-chip-chipping that sounded so like the lawn-mower. Here was the whole matter explained. Some chimney-swallows had built in the chimney, and the nest with its contents had fallen down from near the chimney-top to the lower floor. No wonder the poor little things were in trouble! The twigs of which the basket-like nest was built were somewhat larger than a knitting-needle, and not much interwoven, but stuck together. Never having seen a nest of this kind before, I was puzzled to know what the twigs were stuck together with. Upon consulting Mr. Samuel's book, I found that the bird uses its saliva for the purpose of fastening the twigs to one another, and for fastening the whole to the side of the chimney-flue. The birds were quite well grown, so large that I wonder how they could have found room in the nest; and a recent rain had so softened the glue, as we will call it, that it gave way, and birds, nest, and all came tumbling down. Poor things, they could not be put back in the chimney, so they were placed upon the roof in hope that the parent birds might find them; but these probably left when the nest disappeared, and the little things were found dead in the morning. Isn't it strange that certain swallows should select such an out of the way and dangerous place as a chimney-flue to build in?

THE DOCTOR.

Rural Strategy.

"Will! William!! We-yl-ynm!!!—Charlie! Charles!! Chee-ysries!!!"—The roguish boys heard Aunt Betsey calling, they knew that she wanted kindling-wood or

some errand done, and so, as boys sometimes will, they pretended not to hear. They were having altogether too good a time in the barn, for Will had a new book which he was reading to Charlie, and just as he had got to where the beautiful princess was in a dangerous place there came the well-known call. They kept as still as possible, but Aunt Betsey knew where they were, and as the boys had played that trick once too often she determined to show them that she was in earnest this time. So catching up a strap she started for the barn. The boys saw through the cracks that she was coming, and in no very pleasant mood either. Something must be done, and Will, the quicker-witted of the two, jerked off his boots, a movement that was followed by Charlie, and having placed them as you see in the picture they climbed to the top of the mow to watch. They had hardly done this when Aunt Betsey entered strap in hand, and in no very good humor. "Ah ha! you young shirks think to hide in that way, do you?"—and down came the strap with a whack upon a lot of empty boots. The picture only shows the approach upon the enemy's works. It would take a series of pictures to show the whole. Just think of Aunt Betsey's surprise when she found there were nothing but boots, her consternation when she heard a voice from above cry out "Sold this time, auntie!" and then how the good old lady had to laugh, and the boys laughed, and having had their bit of fun they let the princess in the story take care of herself, and went, like good boys as they really were, and did all that the good old auntie wanted of them. The boys are now "young gentlemen," and they don't quite like to have Aunt Betsey tell the story of this boyish prank of theirs.

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\$100 bond will cost to-day.....	\$90 18
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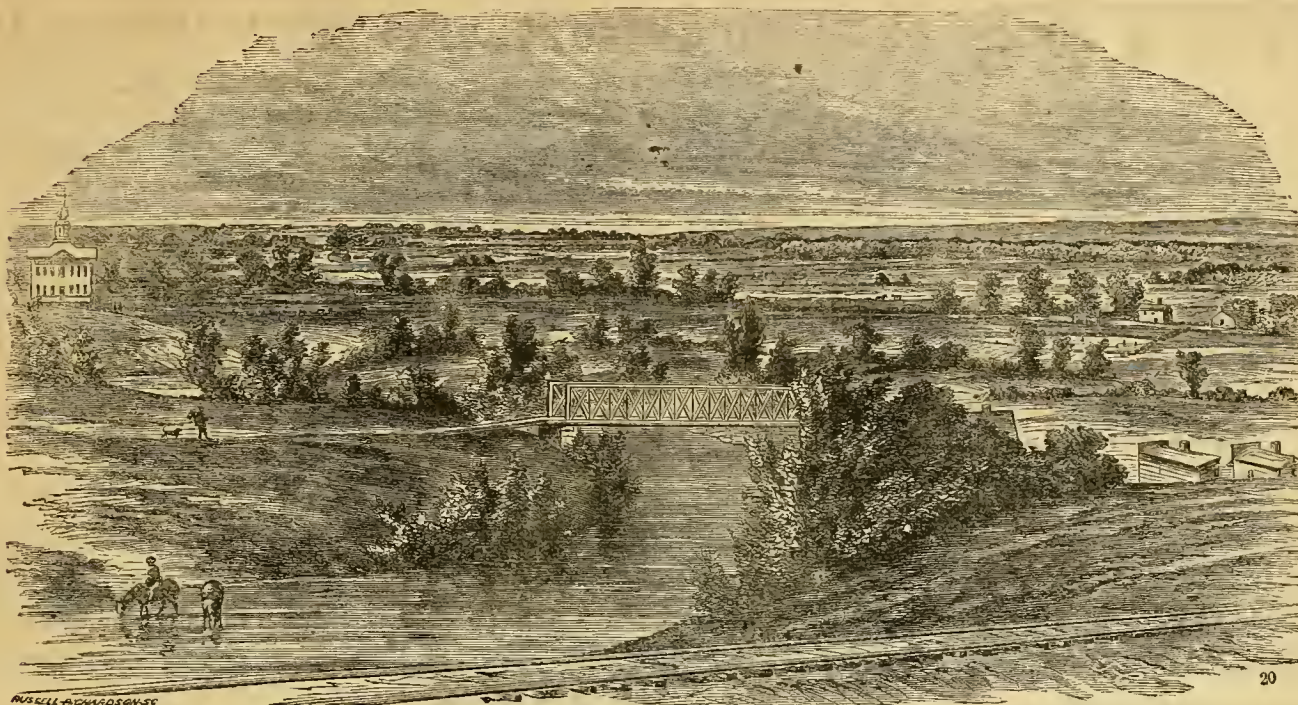
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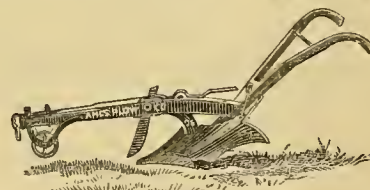
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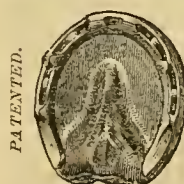
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Carolinas.....	Charlotte, N. C.....	Nov. 15-23
Colorado.....	Denver.....	Sept. 30-Oct. 6
Cotton States.....	Augusta, Ga.....	Oct. 21-24
Georgia.....	Macon.....	Oct. 17-21
Illinois.....	Peoria.....	Sept. 15-20
Indiana.....	Indianapolis.....	Sept. 30-Oct. 10
Iowa.....	Cedar Rapids.....	Sept. 8-12
Kansas.....	Topeka.....	Sept. 23-25
Kansas.....	Leavenworth.....	Sept. 23
Maine.....	Bangor.....	Sept. 16-19
Maryland.....	Baltimore.....	Oct. 18-21
Michigan.....	Grand Rapids.....	Sept. 16-20
Minnesota.....	St. Paul.....	Sept. 23-25
Mississippi.....	Jackson.....	Oct. 13-18
Missouri.....	St. Louis.....	Oct. 6
Montana.....	Helena.....	Sept. 23-Oct. 4
Nebraska.....	Lincoln.....	Sept. 1-6
New England.....	Boston.....	Sept. 2-5
New Hampshire.....	Manchester.....	Sept. 30-Oct. 2
New Jersey.....	Waverly.....	Sept. 22-26
New York.....	Albany.....	Sept. 24-Oct. 1
North Carolina.....	Raleigh.....	Oct. 13-18
Ohio.....	Mansfield.....	Sept. 1-5
Oregon.....	Salem.....	Oct. 6-11
Pennsylvania.....	Erie.....	Sept. 30-Oct. 3
Rhode Island.....	Providence.....	Sept. 9-11
South Carolina.....	Columbia.....	Nov. 4-7
Texas.....	Marshall.....	Sept. 29
Vermont.....	Rutland.....	Sept. 9-12
Virginia.....	Richmond.....	Oct. 18-21
Virginia & No. Carolina.....	Norfolk, Va.....	Oct. 7-10
West Virginia.....	Clarksburgh.....	Sept. 16-18
Wisconsin.....	Milwaukee.....	Sept. 22-26

District Fairs.		
Alabama West.....	Entaw.....	Oct. 18-21
Bay District.....	San Francisco, Cal.....	Sept. 18-23
Cape Fear.....	Wilmington, N. C.....	Nov. 11-14
Conn. River Valley.....	Claremont, N. H.....	Sept. 9-11
Deerfield Valley.....	Charlottesville, Mass.....	Sept. 30-Oct. 1
Dundee Union.....	Yates Co., N. Y.....	Oct. 8-10
Hoosick Valley.....	North Adams, Mass.....	Sept. 23-25
Illinois Northern.....	Dixon.....	Sept. 2-5
Illinois Southern.....	Centralia.....	Sept. 29-Oct. 3
Indiana North-eastern.....	Waterloo.....	Sept. 23
Indiana South-eastern.....	Ansonia.....	Nov. 4-7
Iowa South-western.....	Red Oak.....	Sept. 2-5
Kansas Northern.....	Atchison.....	Sept. 8
Mascoma River Valley.....	East Canaan, N. H.....	Sept. 16-18
Michigan Central.....	Lansing.....	Sept. 30-Oct. 3
Michigan Northern.....	East Saginaw.....	Sept. 15-20
Mississippi East.....	Meridian.....	Oct. 21-24
Missouri North.....	Hannibal.....	Sept. 29-Oct. 4
Missouri South-eastern.....	Cape Girardeau.....	Oct. 14-17
New York Western.....	Rochester, N. Y.....	Sept. 23-27
North Carolina Central.....	Henderson.....	Oct. 7-9
North Carol. Western.....	Salisbury.....	Oct. 7-10
North-western.....	Fort Dodge, Iowa.....	Sept. —
Ohio Central.....	McChesneyburg.....	Sept. 9-12
Ohio Northern.....	Cleveland.....	Sept. 29-Oct. 4
Pennsylvania Central.....	Erie.....	Sept. 23-26
Pa. North-western.....	Corry.....	Sept. 16-18
Ripon (District).....	Ripon, Wis.....	Sept. 15-17
Roanoke and Tar River.....	Weldon, N. C.....	Oct. 28-31
Somerset Central.....	Lowell, Me.....	Sept. 23-25
St. Lawrence Valley.....	Fort Covington, N. Y.....	Sept. 3-5
Tennessee Central.....	Murfreesboro.....	Sept. 24-27
Tennessee Eastern.....	Knoxville.....	Oct. 7-10
Trenton Union.....	Oneida Co., N. Y.....	Sept. 16-18
White River Valley.....	Bethel, Vt.....	Sept. 2-4
Winfield Union.....	Herkimer Co., N. Y.....	Sept. 17-19
Wisconsin Northern.....	Oshkosh.....	Sept. 29-Oct. 3
Wisconsin Southern.....	Janesville.....	Sept. —
Wis. South-western.....	Mineral Point.....	Sept. 3-6
Wisconsin Valley.....	Mazdaunie, Wis.....	Sept. 11-12

Industrial Fairs.		
American Institute.....	New York.....	Sept. 10-Nov. —
Brooklyn Industrial.....	Brooklyn, N. Y.....	Sept. 15-Oct. 13
Cincinnati Exposition.....	Cincinnati.....	Sept. 3
Cincinnati Industrial.....	Cincinnati.....	Sept. 2-Oct. 4
Farmers and Mechanics Union.....	Ludlow, Vt.....	Sept. 16-17
Kansas City Exposition.....	Kansas City, Mo.....	Sept. 15-20
Southern.....	Pueblo, Colorado.....	Oct. 1-4
St. Joseph Industrial.....	St. Joseph, Mo.....	Sept. 29-Oct. 5
St. Louis Association.....	St. Louis, Mo.....	Oct. 6-15
West Tenn. Ag'l & Mech.....	Jackson.....	Oct. 28-Nov. 2

Provincial Fairs.		
Ameliaburg.....	Ontario.....	Oct. 11
Guelph Central.....	Guelph.....	Sept. 16-19
Provincial Ag'l Ass.....	London.....	Sept. 22-26
Quebec Provincial.....	Montreal.....	Sept. 16-19

Horticultural Fairs.		
American Pomological.....	Boston, Mass.....	Sept. 10-12
Maine Pomological.....	Bangor.....	Sept. 16-19
Maine State Pomological.....	.....	Sept. 16-19
Mich. Pomological.....	Grand Rapids.....	Sept. 16-20
Newburg Bay Horticult'l.....	Newburg.....	Sept. 23-25
Penn. Horticultural.....	Philadelphia.....	Sept. 26
Richmond Horticult'l.....	Richmond, Ind.....	Sept. 8
Southbridge Hort.....	Southbridge, Mass.....	Sept. 18-19
South Haven Pomol.....	South Haven, Mich.....	Sept. 3-4
Worcester Horticult'l.....	Worcester, Mass.....	Sept. 16-19

Poultry Shows.		
Connecticut.....	Hartford.....	Dec. 16-18
Eastern Ohio.....	Youngstown.....	Dec. 17-23
Maine.....	Portland.....	Jan. 13-16
Massachusetts.....	Boston Music Hall.....	Feb. 4-11
Michigan.....	Detroit.....	Dec. 17-23
Middlesex Co., N. J.....	.....	Feb. 11-13
Monmouth Co., N. J.....	Freehold.....	Jan. 7-10
New England.....	Worcester.....	Jan. 20-22
New Hampshire.....	Manchester.....	Feb. 11-13

Northern Ohio.....	Cleveland.....	Jan. 23-29
Pennsylvania.....	Philadelphia.....	Dec. 5-13
Western New York.....	Buffalo.....	Jan. 15-20
Western Pennsylvania.....	Pittsburgh.....	Jan. 14-18
Winona Co., Minn.....	Winona.....	Dec. 26-28

County Fairs.

Dallas.....	Salina.....	Oct. 15
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COLORADO.

Boulder.....	Boulder City.....	Sept. 30-Oct. 4
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CONNECTICUT.

Fairfield.....	Norwalk.....	Sept. 15-20
Housatonic.....	New Milford.....	Sept. 22-25
Middlesex.....	Middletown.....	Sept. 17-18
New Haven.....	Meriden.....	Sept. 21-27
New Haven.....	Wallingford.....	Sept. 30-Oct. 2

GEORGIA.

Cherokee Co.....	Rome.....	Sept. 8-13
Terrill.....	Dawson.....	Oct. 10

ILLINOIS.

Adams.....	Quincy.....	Sept. 8-12
Avon.....	Quincy Co.....	Sept. 30-Oct. 2
Boone.....	Basileers.....	Sept. 23-26
Bureau.....	Princeton.....	Sept. 9-12
Carroll.....	Mt. Carroll.....	Sept. 2-5
Cass.....	Virginia.....	Sept. 2-5
Champaign.....	Champaign.....	Sept. 4-13
Clark.....	Marshall.....	Sept. 17-19
Clay.....	Louisville.....	Oct. 7-10
Coles.....	Charleston.....	Sept. 10-13
Crawford.....	Robinson.....	Oct. 1-3
Cumberland.....	Majority Point.....	Oct. 2-4
DeKalb.....	Sycamore.....	Oct. 1-4
DeKalb Union.....	Sandwich.....	Sept. 23-26
DuPage.....	Wheaton.....	Sept. 3-5
Edwards.....	Paris.....	Sept. 3-5
Elgin.....	Albion.....	Sept. 23-25
Elgin.....	Elgin.....	Sept. 30-Oct. 3
Fayette.....	Kane Co.....	Sept. 9-12
Franklin.....	Vandalia.....	Oct. 1-3
Ford.....	Benton.....	Oct. 7-10
Ford Union.....	Parkton.....	Sept. 2-5
Gallatin.....	Gibson City.....	Sept. 2-5
Greene.....	Shawnee.....	Sept. 23-Oct. 3
Grundy.....	Camtollon.....	Sept. 30-Oct. 3
Hardin.....	Morris.....	Sept. 9-12
Henderson.....	Elizabethtown.....	Oct. 1-4
Henry.....	Biggsville.....	Sept. 30-Oct. 3
Iroquois.....	Cambridge.....	Sept. 9-12
Jackson.....	Murfreesboro.....	Oct. 8-10
Jasper.....	Newton.....	Oct. 1-4
Jefferson.....	Mt. Vernon.....	Sept. 23-26
Jersey.....	Jerseyville.....	Oct. 14-18
Jo Daviess.....	Galena.....	Sept. 30-Oct. 3
Jo Daviess Union.....	Warren.....	Sept. 9-12
Kane.....	Geneva.....	Sept. 2-5
Kankakee.....	Amora.....	Sept. 9-12
Kankakee.....	Kankakee.....	Sept. 9-12
Kendall.....	Bristol.....	Sept. 2-5
Knox.....	Knoxville.....	Sept. 9-12
Lake.....	Libertyville.....	Sept. 23-25
La Salle.....	Ottawa.....	Sept. 9-12
Lawrence.....	Lawrenceville.....	Sept. 24-26
Lee.....	Dixon.....	Sept. 2-5
Livingston.....	Pontiac.....	Sept. 23-26
Logan.....	Lincoln.....	Sept. 9-13
Logan Union.....	Atlanta.....	Sept. 2-6
Macdonough.....	Macomb.....	Sept. 2-6
Macon.....	Decatur.....	Sept. 2-5
Macoupin.....	Carlinville.....	Sept. 23-25
Madison.....	Edwardsville.....	Sept. 9-12
Marion.....	Salem.....	Sept. 23-26
Marion Union.....	Centralia.....	Sept. 23-Oct. 3
Marshall Union.....	Wenona.....	Sept. 29-Oct. 3
Mason.....	Havana.....	Sept. 30-Oct. 3
McHenry.....	Woodstock.....	Sept. 30-Oct. 3
McLean.....	Towanda.....	Sept. 9-12
Menard.....	Petersburg.....	Sept. 9-12
Mercer.....	Aledo.....	Sept. 9-12
Montgomery.....	Hillsboro.....	Sept. 30-Oct. 3
Morgan.....	Jacksonville.....	Sept. 9-12
Moultrie.....	Sullivan.....	Oct. 1-4
Munroe.....	Waterloo.....	Oct. 15-17
Northern Illinois.....	Aurora.....	Sept. 2-5
Ogle.....	Oregon.....	Sept. 23-26
Perry Union.....	DuQuoin.....	Oct. 13-17
Piatt.....	Monticello.....	Oct. 1-4
Pike.....	Pittsfield.....	Sept. 9-12
Pope.....	Golconda.....	Oct. 1-4
Putnam.....	Hennepin.....	Oct. 7-10
Quincy.....	Adams Co.....	Sept. 16-20
Randolph.....	Sparta.....	Sept. 24-26
Sangamon.....	Springfield.....	Sept. 23-26
Schuyler.....	Rushville.....	Oct. 1-3
Shelby.....	Shelbyville.....	Oct. 16-19
Stark.....	Toulon.....	Sept. 23-26
St. Clair.....	Belleville.....	Sept. 2-5
Stephenson.....	Freeport.....	Sept. 9-12
Streator.....	Streator.....	Sept. 2-5
Tazewell.....	Pekin.....	Sept. 9-12
Union.....	Jonesboro.....	Sept. 10-13
Vermillion.....	Catlin.....	Sept. 9-12
Wabash.....	McCarnel.....	Sept. 30-Oct. 3
Warren.....	Monmouth.....	Sept. 22-25
Wayne.....	Fairfield.....	Oct. 7-10
Whiteside Central.....	Morrison.....	Sept. 9-12
Will.....	Joliet.....	Sept. 9-12
Williamson.....	Marion.....	Sept. 24-26
Winnebago.....	Rockford.....	Sept. 15-20

INDIANA.

Boone.....	Lebanon.....	Sept. 16-19
Cambridge City.....	Wayne Co.....	Sept. 16-20
Cass.....	Logansport.....	Sept. 9-12
Clinton.....	Frankfort.....	Sept. 15
Decatur.....	Greensburg.....	Sept. 16-19
Delaware.....	Muncie.....	Sept. 23-26
Dubois.....	Jasper.....	Sept. 10
Davies.....	Washington.....	Sept. 22

Edinburg Union.....	Edinburg.....	Sept. 23-27
Fayette.....	Connersville.....	Sept. 2-5
Fall Creek.....	Madison Co.....	Sept. 9-12
Fountain, Warren, Vermilion, Covington.....		Sept. 23-25
Franklin.....	Brookville.....	Sept. 23-27
Fulton.....	Rochester.....	Sept. 23
Gibson.....	Princeton.....	Sept. 15-19
Gosport.....	Owen Co.....	Sept. 2-6
Grant.....	Marion.....	Sept. 30-Oct. 3
Green.....	Linton.....	Oct. 14-19
Hamilton.....	Citron.....	Sept. 10-14
Harrison.....	Corydon.....	Sept. 9
Hendricks.....	Danville.....	Sept. 9
Howard.....	Kokomo.....	Sept. 16-19
Huntington.....	Huntington.....	Sept. 23-26
Jackson.....	Seymour.....	Sept. 9-13
Jay.....	Portland.....	Oct. 1
Jefferson.....	North Madison.....	Sept. 22-25
Johns.....	Franklin.....	Sept. 2
Knox.....	Vincennes.....	Oct. 16-20
Kosciusko.....	Waraw.....	Sept. 13-18
Lagrauge.....	Lagrauge.....	Oct. 1
Lake.....	Crown Point.....	Sept. 24
Laporte.....	Laporte.....	Oct. 8-11
Madison.....	Anderson.....	Sept. 2-5
Marshall.....	Plymouth.....	Sept. 25
Miami.....	Xenia.....	Sept. 16
Middle Fork.....	Clinton Co.....	Sept. 8-12
Monroe.....	Bloomington.....	Sept. 16-19
Mooreville District.....	Mooreville.....	Sept. 1-6
Morgan.....	Martinsville.....	Sept. 9-14
Orange.....	Paoli.....	Sept. 23
Parke.....	Bloomington.....	Sept. 9-12
Pike.....	Petersburg.....	Sept. 9-12
Perry.....	Rome.....	Oct. 14-16
Porter.....	Valparaiso.....	Oct. 1
Posey.....	New Harmony.....	Sept. 9-12
Randolph.....	Winchester.....	Sept. 23-26
Richmond Industrial.....	Richmond.....	Sept. 8-13
Rush.....	Rushville.....	Sept. 9-13
Russell.....	Putnam Co.....	Sept. 1-4
St. Joseph.....	South Bend.....	Sept. 22-25
Starke.....	Knox.....	Oct. 2
Switzerland and Ohio.....	East Enterprise.....	Sept. 9
Thomtown.....	Boone Co.....	Sept. 22-27
Tippecanoe.....	Lafayette.....	Sept. 1-6
Tipton.....	Tipton.....	Sept. 3
Union, Logansport, Martin Co.....		Sept. 8
Union, Union City, Randolph Co.....		Sept. 16-19
Vigo.....	Terre Haute.....	Sept. 1-5
Wabash.....	Wabash.....	Sept. 16
Warrick Co.....	Boonville.....	Oct. 1
White Co.....	Monticello.....	Sept. 23

IOWA.

Black Hawk.....	Waterloo.....	Sept. 23-25
Buchanan.....	Independence.....	Sept. 23-25
Butler.....	Shell Rock.....	Oct. 1-3
Cass.....	Atlantic.....	Sept. 16-18
Cedar.....	Tipton.....	Sept. 16-19
Cedar, Jones, etc.....	Mechanicsville.....	Sept. 2-4
Cerro Gordo.....	Mason City.....	Sept. 25-26
Chickasaw.....	New Hampton.....	Sept. 10-12
Clark Co.....	Osceola.....	Sept. 24-26
Clay.....	Spencer.....	Sept. 24-25
Clayton.....	Farmersburg.....	Sept. 24-26
Dallas.....	Adel.....	Sept. 17-19
Delaware.....	Manchester.....	Sept. 2-4
Des Moines.....	Burlington.....	Sept. 16-19
Farmers' Union.....	Prairie City.....	Oct. 1-3
Floyd.....	Charles City.....	Sept. 18-20
Greene.....	Jefferson.....	Oct. 2-4
Guthrie.....	Guthrie Center.....	Sept. 17-19
Hardin.....	Eldora.....	Sept. 3-5
Harrison.....	Missouri Valley.....	Oct. 1-3
Henry.....	Mt. Pleasant.....	Sept. 2-6
Howard.....	Cresco.....	Sept. 30-Oct. 2
Humboldt.....	Dakota.....	Oct. 3-4
Iowa.....	Marango.....	Sept. 16-19
Jasper.....	Newton.....	Sept. 16-18
Jefferson.....	Fairfield.....	Sept. 16-19
Johnson.....	Iowa City.....	Sept. 2-4
Keokuk.....	Keokuk.....	Sept. 2-5
Kossuth.....	Algona.....	Sept. 24-25
Lee.....	Fort Madison.....	Sept. 30-Oct. 3
Louis.....	Wapello.....	Sept. 24-26
Lucas.....	Chariton.....	Sept. 16-18
Lyon.....	Rock Rapids.....	Sept. 10-12
Madison.....	Winter-et.....	Sept. 17-19
Marion.....	Knoxville.....	Sept. 16-18
Menona.....	Onawa.....	Sept. 23-25
Mills.....	Glenwood.....	Sept. 2-5
Mitchell.....	Osage.....	Sept. 25-27
Monroe.....	Albia.....	Sept. 3-5
North-eastern.....	Postville.....	Sept. 16-19
Pace.....	Des Moines.....	Sept. 2-5
Polk.....	Connell Bluffs.....	Sept. 16-18
Pottawatomie.....	Mt. Ayr.....	Sept. 12-13
Ringgold.....	Davenport.....	Sept. 1-5
Scott.....	Maysville.....	Sept. 15-18
Scott.....	Teledo.....	Oct. 1-3
Union.....	Keokuk.....	Sept. 2-5
Union.....	Afton.....	Oct. 8-10
Union.....	Mechanicsville.....	Sept. 2-5
Van Buren.....	Kosauqua.....	Sept. 24-26
Wapello.....	Ottumwa.....	Sept. 15-20
Winneshick.....	Decorah.....	Sept. 23-25

KANSAS.

Anderson.....	Garnet.....	Oct. 1-3
Butler.....	Douglas.....	Sept. 10-12
Coffee.....	Burlington.....	Oct. 8
Greenwood.....	Eureka.....	Oct. 1-3
Leavenworth.....	Leavenworth.....	Sept. 29-Oct. 3
Lyon.....	Emporia.....	Sept. 16-19
Mitchell.....	Beloit.....	Oct. 16
Riley.....	Manhattan.....	Sept. 30-Oct. 3

KENTUCKY.

Bourbon.....	Paris.....	Sept. 2-6
Campbell.....	Alexandria.....	Sept. 3-6
Christian.....	Hopkinsville.....	Oct. 1-4
Henderson.....	Henderson.....	Oct. 7-11

Louisville & Jefferson.....		Sept. 9-13
Mason and Bracken.....	Germantown.....	Sept. 30-Oct. 4
Nelson.....		Sept. 2-6
Owen.....	New Liberty.....	Oct. 7-10
Simpson.....	Franklin.....	Sept. 30-Oct. 4
Warren.....	Bowling Green.....	Sept. 24-27
Washington.....	Springfield.....	Aug. 20-22

MAINE.

Androscoggin.....	Lewiston.....	Sept. 30-Oct. 2
Aroostook.....	Houlton.....	Sept. 25-26
Aroostook North.....	Presque Isle.....	Oct. 1-2
Cumberland.....	Bridgeton.....	Oct. 1-3
Franklin.....	Farmington.....	Sept. 23-24
Franklin North.....	Strong.....	Oct. 1-2
Kennebec East.....	South China.....	Sept. 24-26
Knox.....	Rockland.....	Oct. 7-9
Knox North.....	Union.....	Sept. 30-Oct. 2
Lincoln.....	Wiscasset.....	Sept. 30-Oct. 2
North Franklin.....	Strong.....	Oct. 1-2
Sagadahoc.....	Topsham.....	Oct. 14-16
Somerset Central.....	Skowhegan.....	Sept. 23-25
Washington.....	East Montville.....	Sept. 17-19

MARYLAND.

Carroll.....	Westminster.....	Sept. 30-Oct. 3
Kent.....	Chestertown.....	Sept. 30-Oct. 2
Worton, Kent Co.....	Worton Station.....	Sept. 30-Oct. 4

MASSACHUSETTS.

Barnstable.....	Barnstable.....	Oct. 7-8
Berkshire.....	Pittsfield.....	Oct. 7-9
Bristol.....	Taunton.....	Sept. 30-Oct. 2
Bristol Central.....	Myrick's.....	Sept. 10-12
Essex.....	Gloucester.....	Sept. 23-24
Franklin.....	Greenfield.....	Sept. 25-26
Grafton.....	Plymouth.....	Sept. 23-25
Hampshire, Franklin and Hampden.....	Northampton.....	Oct. 2-3
Hampshire.....	Amherst.....	Sept. 30-Oct. 1
Hampden.....	Springfield.....	Oct. 7-8
Hampden East.....	Palmer.....	Oct. 14-15
Hingham.....	Middlefield.....	Sept. 11-12
Hingham.....	Hingham.....	Sept. 23-24
Housatonic.....	Great Barrington.....	Sept. 24-26
Martha's Vineyard.....	West Tisbury.....	Oct. 7-8
Marshall.....	Marshall.....	Oct. 1-3
Middlesex.....	Concord.....	Sept. 23-24
Middlesex North.....	Lowell.....	Sept. 25-26
Middlesex South.....	Framingham.....	Sept. 16-17
Nantucket.....	Nantucket.....	Sept. 24-25
Norfolk.....	Readville.....	Sept. 25-26
Plymouth.....	Bridgewater.....	Sept. 17-19
Union.....	Blandford.....	Sept. 18-19
Worcester.....	Worcester.....	Sept. 18-19
Worcester North.....	Fitchburg.....	Sept. 23-24
Worcester North-west.....	Athol.....	Oct. 7-8
Worcester South.....	Sturbridge.....	Sept. 11-12
Worcester South-east.....	Milford.....	Sept. 30-Oct. 1
Worcester West.....	Barre.....	Sept. 25-26

MICHIGAN.

Allegan.....	Allegan.....	Oct. 7-9
Barry.....	Hastings.....	Oct. 1-3
Calhoun.....	Marshall.....	Oct. 1-3
Eaton.....	Charlotte.....	Sept. 23-25
Habbarston.....	Jonah Co.....	Sept. 30-Oct. 3
Lenawee.....	Adrian.....	Sept. 23-26
Saginaw.....	Saginaw.....	Sept. 24-26
St. Joseph.....	Centreville.....	Sept. 30-Oct. 3

MINNESOTA.

Carver.....	Carver.....	Sept. 26-27
Dakota.....	Farmington.....	Sept. 9-11
Fillmore.....	Spring Valley.....	Sept. 23-24
Le Sueur.....	Cleveland.....	Sept. 18-19
Nicollet.....	St. Peter.....	Sept. 17
Olmstead.....	Rochester.....	Sept. 25-27
Rice.....	Fairbault.....	Sept. 16-18
Sibley.....	Arlington.....	Sept. 17
Stearns.....	Sank Centre.....	Sept. 16-18
Washington.....	Stillwater.....	Sept. 17-19

MISSISSIPPI.

Columbus.....	Lowndes Co.....	Sept. 30-Oct. 3
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MISSOURI.

Adair.....	Kirksville.....	Oct. 1-4
Boone.....	Sturgeon.....	Sept. 1-6
Cape Girardeau.....	Cape Girardeau.....	Oct. 12-14
Clay.....	Liberty.....	Sept. 2-4
Cooper.....	Boonville.....	Sept. 2-7
Holt.....	Oregon.....	Sept. 30-Oct. 3
Jasper.....	.....	Sept. 23
Jefferson.....	De Soto.....	Sept. 16-19
Kansas City.....	Kansas City.....	Sept. 15-20
Lewis, Knox, Shelby.....	Newark.....	Sept. 9-13
Linn.....	Linnens.....	Sept. 30-Oct. 3
Monroe.....	Paris.....	Sept. 8-12
Montgomery.....	Montgomery City.....	Sept. 1-6
Phelps.....	Rolla.....	Sept. 9-12
Platte.....	Platte City.....	Sept. 23-27
Saline Central.....	Marshall.....	Sept. 2-6
Shelby.....	Shelbyville.....	Sept. 23
St. Francois.....	Farmington.....	Sept. 9-13
St. James.....	St. James.....	Sept. 23-24
St. James.....	St. James.....	Sept. 23-26
St. Joseph.....	St. Joseph.....	Sept. 29-Oct. 4

NEW JERSEY.

Burlington	Mt. Holly	Oct. 7-8
Cape May	South Seaville	Sept. 9-11
Cumberland	Bridgeport	Sept. 17-18
Hunterdon	Flemington	Sept. 23-25
Sangerfield & Marshall	Waterville	Sept. 16-17
Vineland	Cumberland Co.	Sept. 10-11

NEW YORK.

Antwerp	Jefferson Co.	Sept. 3-5
Booneville	Oneida Co.	Sept. 10-12
Camden	Oneida Co.	Sept. 10-12
Cattaraugus	Randolph	Sept. 10-12
Chautauqua	Jamestown	Sept. 16-19
Chemung	Elmira	Oct. 2-4
Chemung	Norwich	Sept. 24-26
Columbia	Chatham	Sept. 16-18
Columbia	Hudson	Sept. 30-Oct. 2
Corning	Steuben Co.	Sept. 24-26
Cuba	Allegany Co.	Sept. 30-Oct. 3
Delaware	Delft	Sept. 30-Oct. 3
Duchess	Washington Hollow	Sept. 16-18
Duchess Eastern	Amelia	Oct. 7-9
Erie	White's Corners	Sept. 30-Oct. 2
Garrattsville	Otsego Co.	Sept. 9-11
Genesee	Batavia	Sept. 17-18
Gowanda	Cattaraugus Co.	Sept. 25-27
Greene	Cairo	Sept. 24-25
Hammond	St. Lawrence Co.	Sept. 25-26
Iroquois	Versailles	Sept. 15-19
Jefferson	Watertown	Oct. 7-9
Leopox	Oneida	Sept. 30-Oct. 3
Lewis	Lowville	Sept. 16-18
Monroe	Rochester	Sept. 16-19
Montgomery	Fonda	Sept. 17-19
Niagara	Lockport	Oct. 2-4
Northwest Onondaga	Ridgelyville	Sept. 16-18
Orleans	Albion	Sept. 26-27
Oswego	Mexico	Sept. 16-18
Oswego Falls	Oswego Co.	Sept. 23-25
Otego	Otsego Co.	Sept. 16-19
Otsego	Cooperstown	Sept. 23-25
Oxford	Chemung Co.	Sept. 24-26
Queens	Mineola	Oct. 1-3
Rhinebeck	Duchess Co.	Sept. 9-11
Sandy Creek, Richland		
Orwell	Boylston	Sept. 11-19
Saratoga	Ballston Spa	Sept. 9-12
Schenectady	Schenectady	Sept. 9-12
Schenectady	Otsego Co.	Sept. 15-17
Schoharie	Schoharie	Oct. 6-8
Seneca	Seneca Falls	Oct. 7-9
Seneca	Bath	Sept. 25-27
St. Lawrence	Canton	Sept. 17-19
St. Lawrence	Gouverneur	Sept. 9-11
Saratoga	Riverhead	Oct. 1-3
Tioga	Hillsboro	Sept. 10-13
Tioga	Oswego	Sept. 16-19
Tompkins	Ithaca	Sept. 23-25
Ulster	Kingston	Sept. 17-19
Waddington	St. Lawrence Co.	Sept. 9-11
Warren	Glens Falls	Sept. 9-12
Washington	Sandy Hill	Sept. 9-13
Westchester	White Plains	Sept. 9-13

OHIO.

Allen	Lima	Sept. 30-Oct. 3
Ashtabula	Jefferson	Sept. 9-11
Athens	Athens	Sept. 24-26
Auglaize	Wapakoneta	Oct. 1-3
Belmont	St. Clairsville	Sept. 17-19
Brown	Georgetown	Sept. 2-5
Brown	Ripley	Sept. 23-25
Butler	Hamilton	Oct. 7
Carroll	Carrollton	Sept. 30-Oct. 2
Central	Mechanicsburg	Sept. 9-12
Champaign	Urbana	Sept. 30-Oct. 3
Clark	Springfield	Sept. 23-26
Clermont	Boston	Sept. 9-12
Clinton	Wilmington	Sept. 16-18
Columbiana	New Lisbon	Sept. 23-26
Coshocton	Coshocton	Sept. 23-26
Crawford	Bucyrus	Sept. 30-Oct. 3
Darke	Greenville	Sept. 23-26
Defiance	Defiance	Sept. 23-26
Delaware	Delaware	Sept. 30-Oct. 3
Erie	Sandusky City	Sept. 30-Oct. 3
Fairfield	Laurens	Oct. 15-18
Fayette	Washington	Sept. 3-6
Franklin	Columbus	Sept. 16-19
Gallia	Gallipolis	Oct. 1-3
Geauga	Barton	Sept. 23-25
Greene	Xenia	Oct. 8-10
Guernsey	Cambridge	Sept. 10-12
Hamilton	Carthage	Sept. 3-5
Hancock	Findlay	Oct. 1-4
Hardin	Kenton	Sept. 30-Oct. 3
Harrison	Cadiz	Sept. 30-Oct. 3
Highland	Hillsboro	Sept. 24-26
Hocking	Logan	Oct. 9-11
Holmes	Millersburg	Oct. 1-3
Huron	Norwalk	Sept. 9-12
Jackson	Jackson, C. H.	Sept. 24-26
Jefferson	Smithville	Sept. 24-26
Knox	Mt. Vernon	Sept. 23-25
Lake	Painesville	Sept. 16-18
Licking	Newark	Sept. 30-Oct. 3
Logan	Bellefontaine	Sept. 30-Oct. 3
Lorain	Elyria	Sept. 16-19
Lucas	Toledo	Sept. 24-26
Mahoning	Canfield	Oct. 7-9
Marion	Marion	Oct. 8-11
Medina	Medina	Sept. 24-26
Meigs	Pomeroy	Sept. 5-6
Mercer	Celina	Oct. 1-3
Miami	Troy	Oct. 1-4
Montgomery	Dayton	Sept. 23-26
Morgan	McConnellsville	Sept. 30-Oct. 3
Morrow	Mt. Gilead	Oct. 1-3
Muskingum	Zanesville	Oct. 1-2
Noble	Sarahville	Oct. 8-10
Ottawa	Port Clinton	Oct. 7-9
Pataaskala	Pataaskala	Sept. 24-26
Paulding	Paulding	Sept. 16-19
Perry	New Lexington	Sept. 17-20

Pickaway	Circleville	Sept. 16-19
Portage	Ravenna	Sept. 23-25
Preble	Eaton	Sept. 30-Oct. 3
Putnam	Ottawa	Sept. 24-26
Richland	Mansfield	Oct. 7-9
Ross	Chillicothe	Sept. 9-12
Sandusky	Freemont	Oct. 8-11
Scioto	Portsmouth	Sept. 16-18
Seneca	Tiffin	Sept. 24-26
Shelby	Sidney	Sept. 16-19
Stark	Canton	Sept. 30-Oct. 3
Summit	Akron	Oct. 7-10
Trumbull	Warren	Sept. 16-18
Tuscarawas	Canal Dover	Sept. 30-Oct. 3
Union	Marysville	Sept. 17-19
Van Wert	Van Wert	Sept. 25-27
Warren	Lebanon	Sept. 10-12
Washington	Marietta	Sept. 17-19
Wayne	Wooster	Oct. 7-10
Williams	Bryan	Sept. 16-18
Wood	Trotter	Sept. 30-Oct. 2
Wyandot	Upper Sandusky	Sept. 23-26

OREGON.

Linn	Albany	Sept. 23-27
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PENNSYLVANIA.

Berks	Reading	Sept. 16-19
Bucks	Newtown	Sept. 24-25
Chester	West Chester	Oct. 8-11
Doylstown	Bucks Co.	Oct. 7-10
Lehigh	Allentown	Sept. 30-Oct. 3
Montgomery	Amble's Station	Sept. 16-19
Northumberland	Turbotville	Oct. 1-3
Oxford	Chester Co.	Oct. 1-3
Union Agricultural	Burgessville	Oct. 7-9

SOUTH CAROLINA.

Bardwell	Bardwell	Nov. 24-26
Peedee	Cheraw	Oct. 16-17

TENNESSEE.

De Kalb	Smithville	Sept. 24-27
Haywood	Brownsville	Oct. 1-5
Henry	Paris	Oct. 23-25
Hickman	Centerville	Oct. 14-17
Humphreys	Waverly	Oct. 14-18
Jefferson	Chestnut Grove	Nov. 7-8
Lauderdale		Oct. 27
Tipton	Covington	Oct. 14-18
Washington	Jonesboro	Oct. 1-3
Weakley	Dresden	Oct. 1-4
Western	Jackson	Oct. 28-Nov. 2

TEXAS.

Gonzales	Gonzales	Sept. 30-Oct. 3
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VERMONT.

Caledonia	St. Johnsbury	Sept. 23-25
Chittenden	Essex Junction	Sept. 16-18
Lemmonville	Morrisville	Sept. 17-18
Ludlow	Windsor Co.	Sept. 16-17
Wardsboro	Wardsboro	Oct. 7
Windsor	West Montpelier	Sept. 17-18
Windsor	Woodstock	Sept. 23-25

VIRGINIA.

Lynchburg	Campbell Co.	Oct. 21-24
Salem	Salem	Sept. 2-3

WEST VIRGINIA.

Berkeley Co.	Martinsburg	Sept. 9-12
Monongahela Val.	Morgantown	Sept. 1-3
Wood	Parkersburg	Sept. 23-26

WISCONSIN.

Adams	Friendship	Oct. 1-2
Buffalo	Alma	Sept. 18-19
Columbia	Columbus	—
Dane	Madison	Sept. 16-18
Dodge	Juneau	Sept. 18-20
Fond du Lac	Fond du Lac	Sept. 10-12
Grant	Lancaster	Sept. 10-12
Green	Monroe	Sept. 16-18
Green Lake	Berlin	Oct. 7-9
Jackson	Black River Falls	Sept. 16-18
Jefferson	Jefferson	Oct. 1-3
Keweenaw	Keweenaw	—
Lafayette	Darlington	Sept. 25-27
Northern	Oshkosh	Sept. 29-Oct. 3
Outagamie		Sept. 17-19
Pierce	Prescott	Sept. 18-19
Portage	Amherst	—
Racine	Burlington	Sept. 10-12
Ripon	Fond du Lac Co.	Sept. 15-17
Rock	Janesville	Sept. 9-13
Sauk	Baraboo	Sept. 16-18
Sheboygan	Sheboygan Falls	—
Vernon	Viroqua	Oct. 1-3
Walworth	Elkhorn	Oct. 1-4

"The Farmers' Movement."—"The Farmers' War."

In an article last month upon the Patrons of Husbandry, we omitted to state, as was our intention, that the Granges are quite distinct from the Farmers' Associations. The Granges are in a manner secret organizations, while the Associations are open; the membership of the Granges is confined to those who pursue some branch of husbandry, while the Associations are open to all who choose to join. By the constitution of the order political discussions are excluded from Granges, while the Associations are made with an avowed political object. While it often happens that persons belong to both these organizations, the two should not be confounded. One can hardly take up a paper without seeing one of the headings given above. The

movement is especially active in the Western States, and those participating in it are in "dead earnest." It means primarily and principally not only a protest against the general management of the railroads over which the farmers send their produce to market, but an actual revolt. While the platforms and resolutions at the numerous meetings denounce various public abuses, the main point in them is an uncooed hostility to the "railroad monopoly." The war is fairly opened in Iowa, where the Farmers' Anti-monopoly State Convention have nominated a State ticket. The movement has now become highly interesting, not only to producers but to consumers. If the movement has no other effect than to make farmers do their own thinking, and to make them see that whatever abuses exist are largely due to their own indifference, it will do great good. We say "their own indifference," for it has been too much the case that farmers (and others too, for that matter), have voted for whoever was put up by the party to which they belonged, without considering whether they were voting for the best men. Hence we find purely agricultural districts represented in legislatures by lawyers, merchants, and those who get their living by politics—in short, by anybody but farmers.

In most legislatures every interest has many and able advocates except agriculture, and this, the greatest of all interests, has but few if any. If anything is done for agriculture, it too often comes as a concession. Whether the present movement accomplishes all that is hoped for it or not, farmers will hereafter take a more intelligent interest in local and state elections, and will assume that influence among the law-makers that their needs require and their numbers and importance demand. So far as these associations look to the general good—not of agriculturists only, but of all, for we are all members of one body politic—so far as we are in hearty sympathy with them. There is great excitement; the long pent-up feeling is now having away, and words of moderation will scarcely be heeded. Still we would say that denunciation of one's opponents never helped a cause. Some of the platforms and resolutions that have been sent to us are bitter almost to vindictiveness. The case seems to us as one calling for calm argument and the overwhelming logic of statistics and facts rather than for denunciation and vehemence. While our agricultural friends are wasting their strength in their violent resolutions their opponents will say but little but be quietly at work, and only show their strength on the day of election. As we reach our readers but once a month we can hardly take an active part in this interesting contest. With the belief that much good must ultimately result from a united action of the farmers, we hope to see Farmers' Associations and Clubs all over the land. The objects of these will, of course, differ with the locality, but in any case their discussions are likely to be upon matters that affect them most nearly, be it railroads, fertilizers, or what not. As a specimen of the resolutions passed by the farmers at the West, we give the following from the proceedings of the farmers of Pike Co., Ill., which are much more carefully considered and quiet in tone than many that have reached us.

Resolved, That we will support no man for office who is not, and who has not been, in full sympathy with the leading interests of the producer and manufacturer, especially as opposed to those who support monopolies in any form.

Resolved, That our candidates must be men of integrity in every respect, with no entangling alliances that can in any way turn them from the paths of duty to the whole body politic.

Resolved, That the doctrine of vested rights under which railroad corporations claim exemption from Legislative control belongs to a past age and despotic rule, and as it can not exist without infringing on the rights of citizens generally, it has no legitimate place in the jurisprudence of a free people.

Resolved, That many of our public officers are now receiving enormous salaries for their services disproportionate to the rewards of labor in the industrial pursuits of the people, tending to habits of extravagance at variance with republican simplicity, increasing the burdens of taxation, and creating an aristocracy which will sooner or later undermine the liberties of the people; and we demand a reform in that direction.

Southern Cow-Peas at the North.

—A correspondent in Western New York writes: "Would not the southern cow-pea do well here? I sowed a package of seed this spring received from the Cultivator office, Athens, Ga., but not a seed vegetated."—You probably sowed too early, before the soil was warm enough. Wherever good crops of clover can be grown it is not probable there is much to be gained by introducing the Southern pea into our system of rotation. But it is a matter upon which we need experiments.

20 Sheets of Choice Music, \$1.00.

Why throw away money on high-priced Music when you can select from our Catalogue of 700 pieces? Any 20 Half-Dime, or 10 of Dime Series, mailed on receipt of One Dollar. Sold by all booksellers, and can be ordered through any newsdealer. Send stamp for Catalogue. Address

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\$100. One Hundred Dollars. \$100.

For new 5-Oct., double set of reeds, 6 stops, beautifully paneled, warranted Organs, for CHURCH, CHAPEL and PARLOR.

The best Organs in the world for the price, and we guarantee them equal to any reed instrument retailing for double the money. WM. A. POND & CO., 541 Broadway, New York.

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ITHACA, N. Y., offers liberal and practical courses for students in architecture, civil engineering, master mechanics, mechanical engineering, agriculture, and various other branches. Printers, veterinary surgeons, etc., with laboratories, draughting rooms, farms, and work-shops. In agriculture and mechanical arts various courses are provided to meet wants of all students; also general courses in arts, literature, and science preparatory to the other professions. Over five hundred free scholarships. Next year begins September 8th. For Registers, with full information, address as above.

RIVERVIEW ACADEMY,

Poughkeepsie, N. Y.

Work recommences September 11th. Boys, "Fall in."

SWINDLED.—"I SENT \$1 for the CRICKET ON THE HEARTH, for one year, and the publishers sent me the paper and an elegant Chromo, for which I am offered \$3. It's full of good things for everybody—the cheapest and best paper I know of."—GEORGE HALEY. The great illustrated story paper is the largest and best for the price in the country. A genuine \$5 Chromo to every subscriber. Sixteen pages, full. If you don't believe it, send 25 cents and receive it on trial for three months. Agents wanted at \$100 and more a month. JONES & HADLEY, Publishers, 136 Broadway, N. Y.



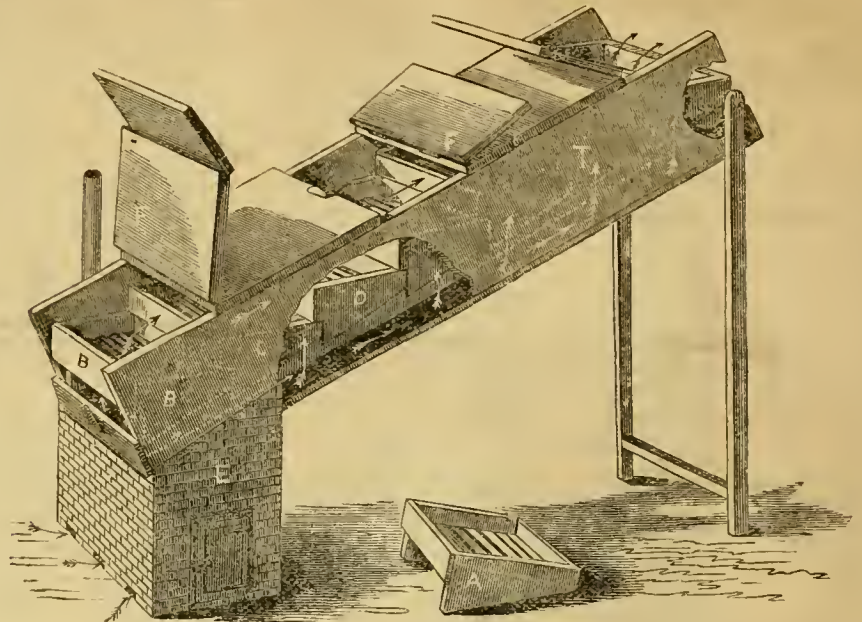
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Butter Makers. To make more and better BUTTER, also save labor. Send for Illustrated Circulars to ORANGE CO. MILK PAK CO., Franklin, Del. Co., N. Y.

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FRUIT PREPARED ON THE AMERICAN FRUIT-DRIER

Has taken the FIRST PREMIUMS wherever Exhibited.

The apparatus has been thoroughly tested two years, has given entire satisfaction, and its use is rapidly extending wherever it is known.

WITH THE AMERICAN FRUIT-DRIER

Surplus fruit of every kind, and also that which from over-ripeness or inferior size or quality is unfit for marketing in the unprepared state, can all be converted into a marketable commodity, which from its excellence will command the highest price. Such fruit as is prepared by this means is now selling in this city at an average of fifty per cent more than ordinary dried fruit.

NO MORE CANS NEEDED.

In preserving fruit, the end to be gained is to retain the sweetness and flavor permanently. The canning process was a great advance on the old-fashioned "pound-for-pound" way of making preserves, but in the necessary steaming process there is loss of valuable constituents of the fruit, much of which is avoided by the new method. More than this, experiment proves that by this latter process the fruit is increased in sweetness by the change of its starch into glucose or fruit-sugar. In other words, while passing through the Drier it is ripened more fully. Fruit so prepared requires one quarter to one third less sugar to prepare it for the table than is needed for canned fruit. Other manifest advantages over the canning system are: **Less Trouble in Operating; Certainty of Keeping; No Loss from Broken Bottles; Great Saving of Room in Storing.**

THE AMERICAN FRUIT-DRIER is so simple in plan and in working, that any carpenter can make it, and any ordinary laborer operate it. Its capacity can be adapted to small or large operations. The ordinary family size, No. 1, will in favorable weather dry apples as fast as two persons can prepare the fruit. The cost is so moderate, that every farmer can profitably buy it to save the surplus product of his orchard or fruit-yard.

Having formed a company under the name and style of the AMERICAN DRIER COMPANY, we are prepared to furnish DRIERS to agents and others in the United States for the season of 1873, in three different sizes, viz:

- No. 1, 24 inches wide and 12 feet long, \$25.00.
- No. 2, 30 inches wide and 14 feet long, \$35.00.
- No. 3, 36 inches wide and 16 feet long, \$45.00.

The above are the factory prices, all complete except stove—delivered at the freight or express office, London, Pa. Any common nine or ten-plate or any other kind of wood or coal stove can be used. Printed directions for setting up and operating sent with each machine.

No. 1 is a convenient size for general use, and will dry all the surplus fruit on any ordinary farm, drying as fast as two hands can hand-pare and cut the fruit.

No. 3 will give employment to four hands.

For fruit-growers in the fruit districts we make a series of DRIERS to do any given amount of work, ranging in price from \$100 to \$500.

Portable DRIERS with sheet-iron stoves all ready to operate, and exhibition models for agents, furnished to order; prices according to size, style, and finish.

Furnaces and steam-heaters for large DRIERS furnished at the lowest rates.

Samples of fruits and vegetables dried in the AMERICAN DRIER sent by mail or express, prepaid, on receipt of 25 cents.

We also invite the attention of manufacturers of various articles which require drying, to the combination of principles embraced in the AMERICAN DRIER patent claims. By special mechanical arrangements it may be adapted—on a large scale—to various purposes, such as drying grain, hops, herbs, chemicals, paper, straw-boards, lumber, and for drying and curing beef, pork, fish, etc., etc.

Agents wanted to introduce and sell the DRIERS, and the rights to make and use them.

For further information, show-bills, circulars, and special terms to agents, send name and post-office address, inclosing stamp, to the

AMERICAN DRIER CO.,

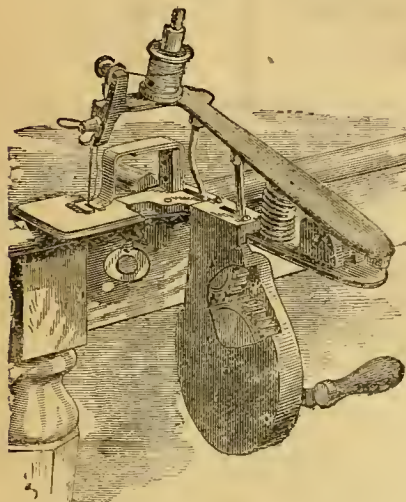
LOUDBON, FRANKLIN CO. PA.

A model of the Drier may be seen at the office of American Agriculturist, 245 Broadway, N. Y.

THE BECKWITH SEWING-MACHINE IMPROVED.

PRICE, \$12.

With New Braiding-Foot and other
Valuable Improvements.



We have been offering as a Premium, for a year past, the

Beckwith Sewing-Machine,

which was fully described in the *American Agriculturist* for March and April, 1872. We have already given and sold more than one thousand of these machines, and testimonials of satisfaction have come from every quarter.

We now offer the **Beckwith Sewing-Machine, Improved**, price \$12. A new and very simple braiding-foot has been made, by which a child can sew on braid without the least trouble, following any desired pattern with ease, also a new arm, spiral spring and lever for raising the presser-foot, all of which are now set in a position that leaves the needle free to be threaded. The joint is much enlarged, and the machine is otherwise greatly strengthened and improved. The use of the braider-foot alone will be valued more than the cost of the machine. This, with the other improvements, is considered so important, that the Beckwith Sewing-Machine Company will make no more of the \$10 style.

Read what the People Say.

Hundreds of letters have been received by us and by the Beckwith Sewing Machine Co., extracts from a few of which are given below. Some of them were written with reference to the \$10 Machine, but are inappropriate to the Improved Machine, as that comprises all the excellencies of the former, with the additions already noted.

WAYNEVILLE, OHIO, June 10, 1873.

SIRS: I received the sewing-machine in due time. I am perfectly delighted with it. I have used it on all kinds of goods. It gives entire satisfaction.

Mrs. EMMA CARDER.

PLYMOUTH, Wis., Jan. 29th, 1873.

DEAR SIR: I have had the Machine nearly a year, I think, and this is the only accident (breaking one needle) that has occurred to it. I have used it a great deal, and like it very much.

Yours respectfully,

Mrs S. C. WILLEY.

LAKEOGE, Mo., Jan., 1873.

DEAR SIR: Please send amount inclosed in No. 1 and 2 needles for Beckwith \$10 Sewing-Machine. The little thing works like a charm.

Truly yours,

S. A. HENLEY.

CHURCHVILLE, VA., Feb. 22d, 1873.

GENTLEMEN: The three Machines came safely to hand, and I have sold two of them to my nearest neighbors, who are much pleased with them.

Yours, etc.,

J. H. HEIZER.

KYLESTOWN, Pa., Feb. 13th, 1873.

GENTLEMEN: The Machine works with perfect satisfaction to all. I am young, and never sewed on a machine until I got the Beckwith, but by closely following directions on the lid of the box, I got along without any trouble.

A. F. HOOVER.

CLINTON HOLLOW, N. Y., Feb. 9th, 1873.

GENTLEMEN: I received the Improved Beckwith Sewing-Machine yesterday. Words will fail to express my admiration of it. I had never seen one—never used any machine much—and had not the slightest trouble in immediately sewing with yours.

Truly yours,

A. F. COOKINHAM.

NEWPORT, October 10th, 1872.

GENTLEMEN: The Machine I bought of you September 21st gives great satisfaction. Wife says she would not give it for a \$100 machine, it is so nice and handy.

Respectfully,

CHARLES ALMY.

We have contracted with the Beckwith Sewing Machine Company for a large number of them to supply our own friends, and as *Premiums*. Each machine is put in a neat, compact box, with *hemmer and guide, oil-can with oil, thread, different-sized needles, etc.*, with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$12. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or herself, or for any friend, of one copy of *Hearth and Home* for six months, or one copy of the *AMERICAN AGRICULTURIST* for one year, to those persons who send us \$12 for one of the machines while this offer is continued.

The New Sewing Machine as a PREMIUM without Money.

To enable those to get this machine who can not raise even the \$12 to buy it, we make the following offer:

We will give the Machine to any one who will collect and forward **EIGHT** subscribers for **HEARTH AND HOME** one year at \$3 each; or **SIXTEEN** subscribers to **AMERICAN AGRICULTURIST** for one year, at \$1.50 each, expressage on the Machine to be paid by the recipient of it.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Address

ORANGE JUDD COMPANY, 245 Broadway, N. Y.

THE BECKWITH PORTABLE Family Sewing-Machine. PRICE \$20.

Enlarged and Improved.

ITS WEIGHT IS 7 POUNDS.

We have been offering for a year past

The Beckwith Sewing-Machines,

both the original \$10 Machine and the \$12 Improved, as Premiums, and in that time have disposed of hundreds of them, which have given almost universal satisfaction, and elicited multitudes of testimonials of delight from the recipients. While we continue the offer of the Improved \$12 Machine as heretofore, we now offer the new

Portable Family Machine,

price \$20, which comprises all the excellencies of the former, with many valuable improvements. Its size and power are increased, and its capacity thus very much enlarged, without impairing its portability. There have been added cam and eccentric movement, a balance-wheel, and also an oscillating needle-clamp, by which the length of stitch can with the greatest ease be changed to the finest shade of variation without touching the needle.

We will give one of these \$20 Machines to any one who will collect and forward to us **Thirty** Subscribers to *American Agriculturist* at \$1.50 each, or **One Hundred** at \$1 each, expressage on the Machine to be paid by the recipient of it.

To any one sending us \$20, we will send one of the Machines (packed in a neat, portable case, with handle to carry it easily), expressage to be paid by purchaser. If, after having the Machine 30 days, and giving it a fair trial, it does not give satisfaction, upon the return of the Machine, express charges paid, we will refund the \$20.

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It is at once quaint and truthful, and illustrated as it is by masterly cuts, it should be one of the most popular books.—*Christian Standard* (Cincinnati).

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WITH

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The personages who figure in this story are, with one exception, country people—such men and women as Wordsworth loved to study. It is not every man, whatever may be his talents, that can safely enter this sphere of literary labor. To be successful in it, he must possess exceptional qualities; but for those who know how to find it, here there is gold of the purest, richest kind. In such a work, however, there is no convenient place where mediocrity can rest; there is nothing but absolute failure or absolute success. And Mr. Eggleston has succeeded. His power lies in the delineation of character. The plot is ingenious and natural, the incidents are managed with great skill, and there are many descriptive passages of singular force and beauty. But the strongest impression left on the reader's mind as he closes the volume is that he has been in the company of very interesting men and women, and has made a number of new and valuable acquaintances.—*The Albion*, New York.

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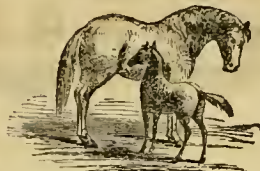
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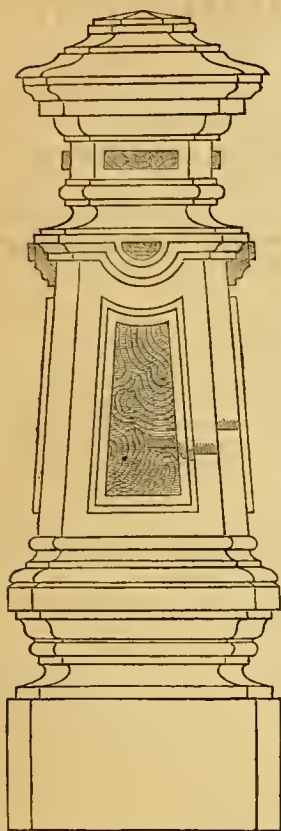
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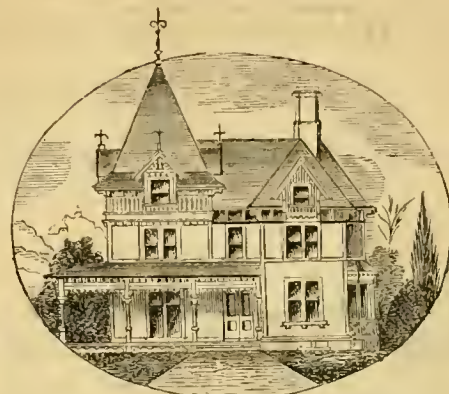
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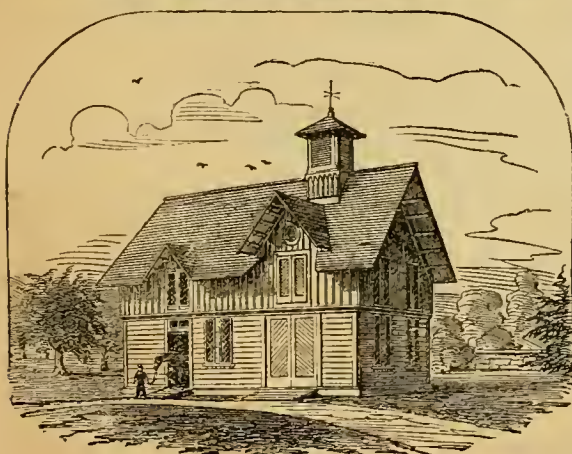
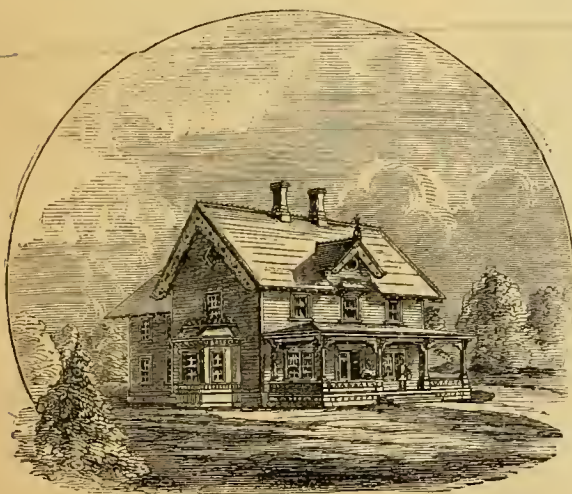
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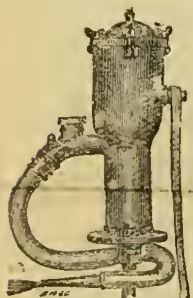
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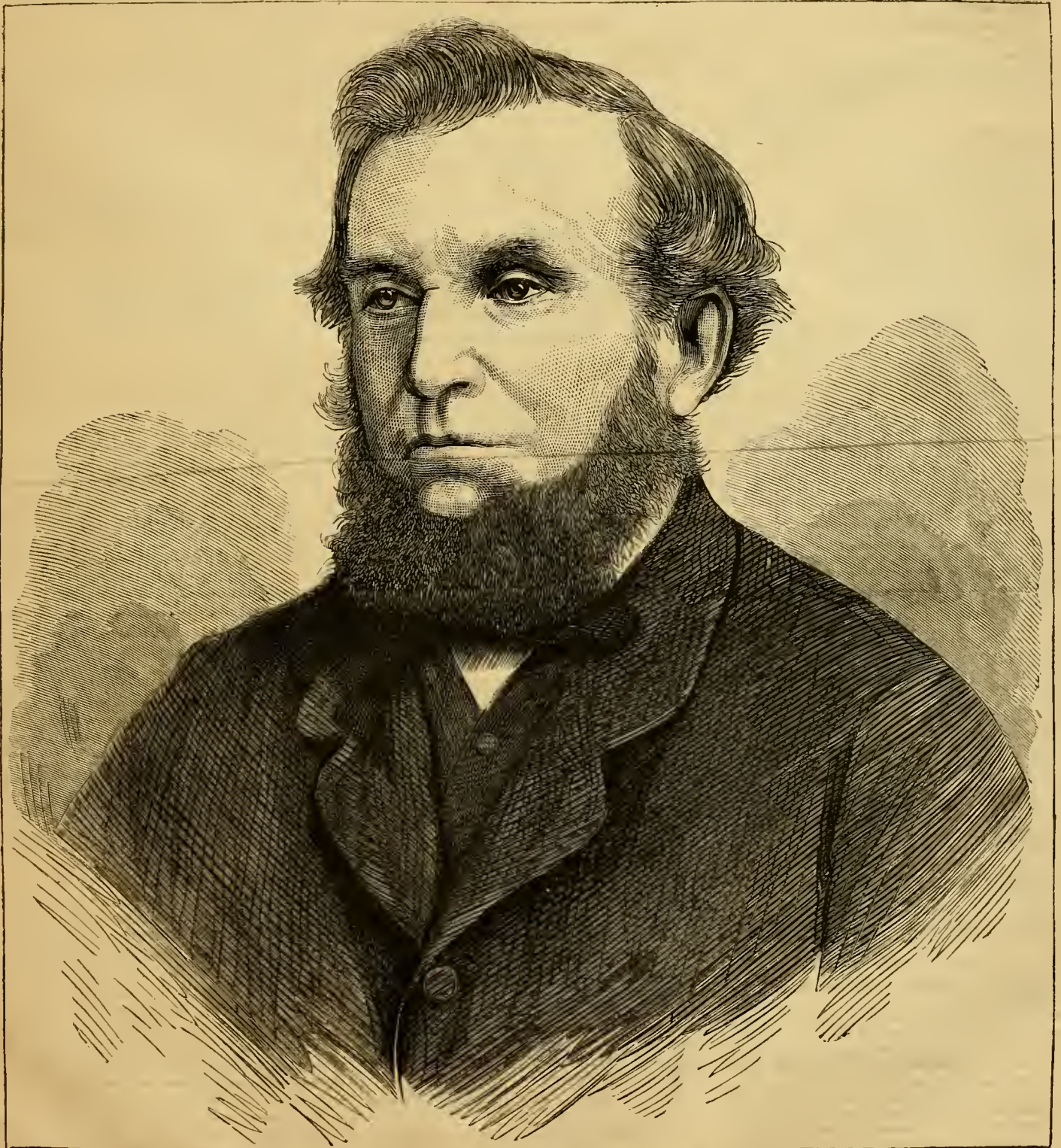
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Advice as to Stock.—"J. W. H., " who dates his letter Glasgow only (there are eight Glasgows in the U. S.), asks advice as to procuring stock for his farm of three hundred acres, and requests us to write him. Doubtless he would gently intimate that we were neglectful of his requests, but now he sees how it is. Not knowing his locality it is impossible to say what sort of stock he should select, as nothing is of greater importance than to choose the stock with reference to the peculiarities of the locality. Where a large sum is to be spent in this manner, the greatest study and caution should be exercised to prevent mistakes and consequent loss and disappointment. Hereford are excellent beef cattle almost anywhere that there is good pasturage.

Day of Month.		Boston, N. Eng., N. York, Mich., Wiscon., Iowa, and Oregon.				N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.				Washington, Maryland, Virginia, Kentucky, Missouri, and California.			
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PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHAS'TON.	CHICAGO.
Full M'n	0 11. Y.	0 11. M.	0 11. M.	0 11. M.	0 11. M.
1st Quart.	13 1.41 m.	1 29 m.	1 17 m.	1 5 m.	0 35 m.
New M'n	21 6 11 m.	5 59 m.	5 47 m.	5 35 m.	5 5 m.
1st Quart.	28 7 26 ev.	7 14 ev.	7 2 ev.	6 50 ev.	6 20 ev.

AMERICAN AGRICULTURIST.

NEW YORK, OCTOBER, 1873.

"Early to bed and early to rise" is a good rule at all times, but it is emphatically so on the farm in October. The days are getting shorter. Work is very pressing. Night comes before we expect it. We should use all the light there is, and must be up bright and early in the morning. We shall have time to rest by and by. An hour's work in October will often accomplish twice as much as in November. We must avail ourselves of every fair day to get in the crops. A farmer, however, should rarely be so absorbed in the work on hand as to forget that which is to come. We urge an intense activity and energetic promptness in regard to whatever needs to be done now, for this reason, among others, that the farmer who is ahead of his work or fully abreast of it will be able to avail himself of every opportunity that may occur to do anything that will facilitate his operations in future. There is much work which the men and teams might do in winter if we only made preparations for it before the ground is frozen, such as ditching, hauling muck, drawing stones, etc.

Hints about Work.

Rye may be sown the early part of the month—the earlier the better.

Winter Wheat may still be sown as far north as Philadelphia. The farther south the later, as a rule, may winter wheat be sown.

Wheat may be harrowed in the fall, whenever the land is dry, with much benefit. We use a Thomas's harrow for this purpose. The object is to kill small weeds, and the work should be done as soon as the weed-seeds commence to germinate—say in two weeks after the wheat is sown. Go over the field two or three times.

If Grass-seed is Sown with the Wheat the harrowing must be dispensed with.

Rolling Wheat in the fall is sometimes beneficial, but as a rule we prefer to let the surface of the land be somewhat cloddy. The frosts of winter will mellow and break down the clods. In the mean-

time the clods afford some protection to the wheat plants.

Top-dressing Wheat is still in order. Spread the manure evenly and lightly on the surface. It will not smother the plants. Manure so used is often very beneficial.

Finish Cutting Up Corn.—Our own plan is to take five rows. Make the stook on the third hill of the center row, as shown in the annexed diagram:

* * * * * Cut the hills A and B, and place the stalks round the standing hill at C, where the stook is to be. Then cut up the other hills, and place the stalks, one or two hills at a time, in a neat stook at C. When done, bind the stook with two corn-stalk bands at top. Be careful to save the leaves, as they are the best part of the fodder.

Husking Corn.—Where this is done with a machine the corn should be bound into sheaves of a convenient size to pitch and load on a wagon. If the corn is very dry it may be mowed away in the barn and husked in winter; but if it is at all damp or green it will mold and spoil.

Husking by Hand in the Field will be the general practice until our machines are brought nearer to perfection. Commence as early as the husks are dry enough to strip off easily. Husking in the cold, stormy weather of November is unpleasant and unprofitable work.

Digging Potatoes will some day be done by machinery; but at present the work will most be done by hand. A plow will help, but the ground must be gone over with hooks. Any other plan leaves more potatoes in the land than will pay for the digging.

In Pitting Potatoes, cover the heaps with a layer of straw and then a thin layer of earth. This will do for the present. Then before winter sets in put another layer of straw all over the heap and cover carefully with earth. This second layer of straw, holding dead air, will resist the severest frost.

If Potatoes Bring a Fair Price it is usually better to draw them to market directly from the field. Have a double box on the wagon, and if the roads are good two horses can easily draw 50 bushels.

Small Potatoes should be kept until spring. They are worth far more for stock then than at this season when green food of all kinds is plenty.

Corn-Stalks when properly cured make excellent fodder. Take pains when husking to make the bundles of stalks into good stooks that will withstand a severe rain-storm. If any stooks blow down or get out of shape go over the field after the storm and reset the stooks. Hasten the curing as much as possible, and draw in the moment the stalks are in fit condition. Sap in the stalks is not half as injurious as external dampness.

Stacks of Stalks should be made small, with a very high roof. Keep the middle very full and solid so that the stalks shall settle most towards the outside and thus throw off the rain.

Mangel-Wurzel and sugar-beets should be gathered early. They are much more liable to injury from frost than turnips.

Mangel Leaves are apt to scour animals, and should be fed only in moderate quantities. It is well to let them wilt a day or two before feeding.

Fall Plowing should be pushed forward whenever a man and team can be spared. Put on three horses abreast and make thorough work.

Weeds that have Gone to Seed should be mown when wet, so that the seed will not be so liable to shell out. Throw into heaps and burn when dry.

Dry Earth is very useful to scatter on the floor of the hen-house, pig-pens, etc. Get in a store for winter use and put in under cover where it can be easily obtained as required.

Implements and Machines that will not be required until next spring should be taken apart if necessary and stowed away. Be careful to lose none of the bolts or nuts.

Sheep are looking up again. On grain farms a small flock of sheep can be kept with little expense.

Keep only the Strongest and Best Sheep.—Select out all the old and poor sheep and dispose of them. It will not pay to winter them.

For Winter Fattening we want sheep that have got their growth and are now in good thrifty condition. Merino sheep for this purpose should be three or four years old. Let them have good pasture and a little grain—say half a pound each per day. They will gain very rapidly this month.

Long-wool Sheep and Lambs should be dipped or dressed with a solution of carbolic soap to kill ticks. If this is neglected now the ticks will be very troublesome next spring.

For Combining-Wool and Mutton Combined there is no more profitable sheep than a grade Cotswold or Leicester-Merino. Select out the strongest and best common Merino ewes, and procure a full-blood Cotswold, Lincoln, or Leicester ram. For 20 or 25 ewes a last-spring's lamb will answer. Good, pure-bred ram lambs can be obtained for from \$40 to \$50, and nothing will pay better.

Merino Sheep will always be wanted in this country, and those who have good flocks should spare no pains to improve them.

Farrow Cows that are giving milk should be fed two or three quarts of corn-meal per day. This will fatten them, and they can be milked at the same time.

Milk Cows will also pay well for a quart or two of meal per day. It will get them into good condition for the winter, as well as keep up the supply of milk.

Look Out for Storms, and have the sheds and stables ready to shelter the sheep, calves, cows, etc. See that the stables are well ventilated.

SWINE.—Pork has been so low for two or three years that many farmers have paid no attention to the improvement of their breed of pigs. They make a mistake. There will be a reaction. Good pigs will soon be wanted.

Early Maturity is more than ever desirable in our breeds of pigs. The demand is now greater and the price higher for young, small, well-fattened pigs than for large hogs.

As Soon as a Pig is fat he should be sent to market. Sell the fat ones and buy lean ones to feed.

Fattening Pigs should be pushed forward this month as rapidly as possible. There is no better food than sound corn. If it does not cost too much, grind and cook it. At any rate, shell it and soak the corn for 24 or 36 hours. Let the pigs have all of this soaked corn they will eat, and then tempt them to eat more by throwing them some dry ears of corn. Let them have a full supply of fresh water at all times.

Young Pigs should have all the milk you can spare. Our own plan is to feed them cooked corn-meal, and when they have eaten as much of this as they will, give them some more cooked meal mixed with milk. This induces them to eat more, and they grow very rapidly.

Breeding Stock should have plenty of exercise, with a liberal allowance of food of a not too concentrated character—such as pumpkins, bran, mangel leaves, turnips, etc.

Spring Pigs are better wintered in the pork-barrel.

Early Fall Pigs should be pushed forward rapidly, so that they may have strength enough to stand the winter.

Late Fall Pigs must be kept in pens by themselves, and should have the best of food. It will not do to let them rough it with the common herd.

Horses should be kept up at night; or at any rate, if turned out to pasture they should be allowed grain and hay in addition.

Poultry should not be neglected. See that they have abundance of food. Clean out the hen-house

frequently. Scatter dry earth on the floor. Do not let the hens roost in trees or on implements.

Work in the Horticultural Departments.

October in northern latitudes will close up most of the out-of-doors labor for the year, while further south a number of weeks still remain before frosts set in. The cool, bracing air at this season invigorates one, and though the days are short the amount of labor that can be done now is nearly equal to that accomplished during the hot, long days of June. Nature seems to have created this month for the especial benefit of those who are behind with their work, and to give them an opportunity to close up the many necessary jobs around a garden. The copious rains have so freshened up the plants and grass that little need be feared of an autumn drouth. The labors of the coming season may be materially lightened by a judicious foresight in the application of work at the present time.

Orchard and Nursery.

Fruit.—Harvest the late varieties of fruit before the frost becomes too severe. If handled with care, fruit picked now will last a long time. A cool cellar is needed for storing and keeping fruit. Sort and place the fruit in barrels; head, and lay the barrel upon its side, taking care to leave a foot at least between the barrel and cellar wall. The cellar should not be closed until the low temperature outside makes it necessary.

Late Pears are to be treated in the same way as recommended above, except that it is best to substitute boxes for barrels unless one has a great quantity. Do not remove them to the cellar until there is danger of freezing. The earlier sorts may be placed on shelves in the fruit room.

Cider and Vinegar.—The best use for inferior fruit is to manufacture into cider and vinegar. The best cider can be made at this season, as there is less danger of rapid fermentation. Cider made from good fruit and run through a filter of sand may be bottled and placed in a cool cellar, where it will keep well.

Planting.—If fall planting is practiced the trees should be set out as soon as they can be had, so that they may have time to get established before winter sets in. Plow and prepare the land so that no delay need happen after the trees have arrived. Do not mix the sorts, but plant out separately in straight rows, and have a plan of the orchard showing the position and name of each variety, so that should the labels be lost or the names be obliterated by the weather the plan will be a sure guide to the variety.

Labels.—When trees arrive from the nursery the labels are often wired so close as to injure the bark. This should be looked to, and if a plan of the orchard has been made the labels may be removed altogether.

Clear up any weeds or rubbish which have collected around the orchard and fences during the fall, and see that the fences are repaired so as to prevent any stray animals from entering and injuring the trees. A little time employed in this now will often prevent hundreds of dollars of damages.

Fruit Garden.

Currants and Gooseberries.—Prune when the leaves have fallen, cutting out the old wood so as to make the bushes open and allow the light and air to penetrate them. Shorten the new growth at least one-half, and if the shoots are weak remove more. Save cuttings of such varieties as are needed for propagation and plant them in trenches 18 inches apart and the plants four inches in the rows, taking care to press the earth firmly around them.

Strawberries planted last month must be kept clear of weeds, and other beds set out where needed. Do not mulch until the ground is about to freeze.

Grapes.—Allow them to become perfectly ripe

before they are picked. The stalks which hold the bunches will lose their stiffness, so that the cluster will hang down from the vine when quite ripe.

Blackberries and Raspberries stand the winter better if the canes are laid down and covered; this, however, should not be done until quite late—if possible, just previous to the freezing up of the ground. New plantings may be made now if wanted. Set out the plants in rows 8 feet apart, allowing 6 feet between the plants for blackberries; plant raspberries 4 feet apart each way. The soil should be rich and properly pulverized by plowing.

Kitchen Garden.

In this department there will be plenty of work to occupy the gardener's time until the winter sets in. Everything around the garden should be put in good order at once. Delays in this matter are dangerous, especially in this climate.

Drainage can usually be done at this season, and there are very few gardens which will not be benefited by it. The articles which frequently appear in our columns upon farm drainage will apply with equal force to the garden.

Plowing.—The garden should in every case where it is possible be manured and plowed or spaded in the fall. The frost then has a chance to act upon the soil and render it better for crops, besides allowing it to be worked earlier in the spring.

Manure should be carted and placed upon the ground in piles ready for use early in the spring. This work may be continued until quite late, even after winter has set in.

Asparagus.—As soon as the tops turn yellow cut and burn so as to destroy the seeds. If put into the manure-heap the seeds grow and the plants become troublesome weeds.

Cabbages.—Prepare cold-frames for wintering the young plants grown from seed planted last month. Set the plants 2½ inches apart each way, and down to the leaves, pressing the earth firmly around the plants. Do not apply the ashes until freezing weather. Treat cauliflowers in the same manner.

Celery.—Finish earthing up, banking the earth well up against the stalks nearly to the top of the leaves. Before the ground freezes take up and set in trenches a foot wide and as deep as the plants are high, and cover with straw and boards, increasing the thickness of the covering as the cold becomes more severe.

Lettuce.—The more hardy kinds may be sown early this month, and will winter over if covered lightly with litter or leaves. A supply should be put into the cold-frame for early spring planting.

Rhubarb.—This is the best season for making new plantations, as the plants start too early in the spring to be moved to advantage. Divide up the old roots so as to leave a good bud to each plant, and set out in rich soil; too much manure can hardly be used.

Spinach.—The late sowings must be kept weeded and thinned, and later, when cold weather finally sets in, covered with a thin layer of leaves or straw.

Squashes.—Cut before the frost injures, and allow them to remain in the field for a day or two to get thoroughly dry. Store in a cool, dry place where there will be no danger of frost. Handle with care, so as to prevent bruising and decay.

Sweet-Potatoes.—After the frost has wilted the vines, dig and allow the potatoes to lie in the sun an hour or two. In storing for winter, pack in barrels with cut straw, taking care not to injure the tubers, as a slight bruise will often cause decay. The temperature at which they are best preserved is about 60°, and it should not go much less than this.

Roots.—See that the bins, barrels, cellars, etc., are all ready for the reception of roots. It is best in northern latitudes to store in root-cellars rather than in the open ground, if possible; the great fall of snow and the depth to which the ground freezes in some localities will often prevent access to them when in heaps or trenches in the ground.

Farnips.—A supply should be dug for the winter, and the remainder left until spring in the ground. They are handy for stock when other roots have gone.

Flower-Garden and Lawn.

The bountiful supply of rain has produced a marked effect in the gardens and lawns. Trees, shrubs, and plants, which earlier in the season suffered so disastrously from the drouth, have taken on a new aspect, and plants of all kinds look stronger, and seem to be better prepared to stand the winter than they have for several seasons past.

House Plants which were set out in the border may be taken up if wanted, but it is best to start new plants from cuttings. Old plants are seldom good and well-shaped except through the vigorous use of the pruning-knife, and most amateurs are not willing to use this implement to any great extent upon their pet plants. Plants taken up should be kept in the shade for a few days until they recover from the shock of moving.

Cannas.—Take up before the frost injures the foliage, otherwise the roots are apt to rot. Store in a cool, dry place free from frost.

Bulbs.—Hardy bulbs of Crocus, Tulips, Hyacinths, etc., should be planted as soon as received; the earlier this month the better. Take up Gladioli and other tender bulbs which will not stand the winter, and after drying store where there will be no danger of frost.

Dahlias.—After the foliage has been killed by frost, dig up the roots on a warm, dry day, label, and store in a dry cellar. Do not injure the tubers, as they are easily broken and are liable to decay.

Protection must be given to half-hardy shrubs and plants, but do not apply it until quite cool weather. The object is to prevent sudden changes of heat and cold rather than to keep out frost.

Leaves.—Secure as many leaves as possible for covering beds and plants, as well as for use in the stables; they may be gathered as long as there is no snow, and stored in bins where they can be reached at any time.

Green and Hot Houses.

All needed repairs ought to have been done long ago, but if any now remain attend to them at once. Plants taken from the borders will need to be cut back to secure a good shape.

Forcing Plants.—Any shrubs or perennials which are to be forced in the spring should be taken up and heeled-in in a cool place where they will not grow, and where they can be had at any time.

Cuttings.—Make cuttings of such bedding plants as will be needed for winter flowering.

Ventilation.—Give plenty of air on every mild day, so that the transition from the open air to the greenhouse shall be as gradual as possible.

Annuals.—Sow seeds of annuals at intervals, so as to have plenty of cut flowers. Sweet Alyssum, Mignonette, etc., are quite useful in making bouquets for winter.

Soil and Pots.—Sods which have been piled up for a year or two and turned over occasionally will now be fit for use in potting, and plenty should be put into the potting shed. Provide plenty of moss and packing material if plants are sent out during the winter; also pots and all necessary articles.

Insects.—Keep a sharp look-out for insects, and as soon as any appear destroy at once.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared especially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Sept. 13th, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	27 days 1873.	27 days 1872.	27 days 1871.
27 days 1873.	271,000	2,133,000	4,338,000	97,000	8,500	965,000	27 days 1872.	231,000	2,513,000
27 days 1872.	231,000	2,513,000	2,585,000	204,000	24,500	1,213,000	27 days 1871.	361,000	3,736,000
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	27 days 1873.	27 days 1872.	27 days 1871.
27 days 1873.	408,000	2,947,000	4,802,000	229,000	7,000	2,047,000	27 days 1872.	361,000	3,736,000
27 days 1872.	361,000	3,736,000	3,195,000	216,000	—	2,030,000	27 days 1871.	361,000	3,736,000

Comparison with same period at this time last year.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	27 days 1873.	27 days 1872.	27 days 1871.
27 days 1873.	271,000	2,133,000	4,338,000	97,000	8,500	965,000	27 days 1872.	231,000	2,513,000
27 days 1872.	231,000	2,513,000	2,585,000	204,000	24,500	1,213,000	27 days 1871.	361,000	3,736,000

CURRENT WHOLESALE PRICES.									
Aug. 13. Sept. 13.									
PRICE OF GOLD	113 1/4	111 1/4	111 1/4	111 1/4	111 1/4	111 1/4	111 1/4	111 1/4	111 1/4
Flour—Super to Extra State	4 75	4 75	4 75	4 75	4 75	4 75	4 75	4 75	4 75
Extra Western	5 00	5 00	5 00	5 00	5 00	5 00	5 00	5 00	5 00
Extra Gracioso	5 25	5 25	5 25	5 25	5 25	5 25	5 25	5 25	5 25
Superfine Western	4 75	4 75	4 75	4 75	4 75	4 75	4 75	4 75	4 75
RYE FLOUR	4 40	4 40	4 40	4 40	4 40	4 40	4 40	4 40	4 40
CORN MEAL	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75
WHEAT—All kinds of White	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50
All kinds of Red and Amber	1 65	1 65	1 65	1 65	1 65	1 65	1 65	1 65	1 65
CORN—Yellow	63	63	63	63	63	63	63	63	63
Mixed	47	47	47	47	47	47	47	47	47
White	—	—	—	—	—	—	—	—	—
OATS—Western	41	41	41	41	41	41	41	41	41
State	43	43	43	43	43	43	43	43	43
RYE	85	85	85	85	85	85	85	85	85
BARLEY	80	80	80	80	80	80	80	80	80
HAY—Hale, 100 lbs.	85	85	85	85	85	85	85	85	85
STRAW, 100 lbs.	60	60	60	60	60	60	60	60	60
COTTON—Middling, 100 lbs.	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2
HOPS—Crop of 1873, 100 lbs.	—	—	—	—	—	—	—	—	—
FRUIT—Live Geese, 100 lbs.	63	63	63	63	63	63	63	63	63
SEED—Clover, 100 lbs.	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2
Timothy, 100 bushels	4 50	4 50	4 50	4 50	4 50	4 50	4 50	4 50	4 50
Flax, 100 bushels	2 05	2 05	2 05	2 05	2 05	2 05	2 05	2 05	2 05
SUGAR—Refined & Grocery 100 lbs.	7	7	7	7	7	7	7	7	7
MOLASSES, Cuba, 100 lbs.	13	13	13	13	13	13	13	13	13
New Orleans, 100 lbs.	60	60	60	60	60	60	60	60	60
COFFEE—Rio (Gold), 100 lbs.	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2	19 1/2
TOBACCO, Kentucky, 100 lbs.	7	7	7	7	7	7	7	7	7
SEED—Lard, 100 lbs.	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2	5 1/2
Wool—Domestic Fleeced, 100 lbs.	41	41	41	41	41	41	41	41	41
Domestic, pulled, 100 lbs.	30	30	30	30	30	30	30	30	30
California, clip, 100 lbs.	16	16	16	16	16	16	16	16	16
TALLOW, 100 lbs.	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4	7 1/4
OIL—Coke, 100 lbs.	36 00	36 00	36 00	36 00	36 00	36 00	36 00	36 00	36 00
PORK—Mess, 100 lbs.	—	—	—	—	—	—	—	—	—
Prime, 100 lbs.	—	—	—	—	—	—	—	—	—
BEEF—Plain mess, 100 lbs.	8 25	8 25	8 25	8 25	8 25	8 25	8 25	8 25	8 25
LARD, in tins, 100 lbs.	8	8	8	8	8	8	8	8	8
BUTTER—State, new 100 lbs.	20	20	20	20	20	20	20	20	20
Western, 100 lbs.	14	14	14	14	14	14	14	14	14
CHEESE—100 lbs.	—	—	—	—	—	—	—	—	—
WATERMELONS, 100 lbs.	8 00	8 00	8 00	8 00	8 00	8 00	8 00	8 00	8 00
MELONS, 100 lbs.	2 50	2 50	2 50	2 50	2 50	2 50	2 50	2 50	2 50
SQUASH, 100 lbs.	75	75	75	75	75	75	75	75	75
BEANS—100 bushels	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 50
PEAS—Canada, free, 100 bu.	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2	92 1/2
EGGS—Fresh, 100 dozen	16	16	16	16	16	16	16	16	16
POULTRY—100 lbs.	15	15	15	15	15	15	15	15	15
DUCKS, 100 lbs.	15	15	15	15	15	15	15	15	15
GOOSE, 100 lbs.	15	15	15	15	15	15	15	15	15
PIG, 100 lbs.	60	60	60	60	60	60	60	60	60
PIG, 100 lbs.	15	15	15	15	15	15	15	15	15
WOODCOCK, 100 lbs.	100	100	100	100	100	100	100	100	100
PARTRIDGE, 100 lbs.	—	—	—	—	—	—	—	—	—
GROUSE, 100 lbs.	—	—	—	—	—	—	—	—	—
TRUMPET, 100 lbs.	—	—	—	—	—	—	—	—	—
CABBAGES—100 lbs.	5 00	5 00	5 00	5 00	5 00	5 00	5 00	5 00	5 00
ONIONS—100 lbs.	6 00	6 00	6 00	6 00	6 00	6 00	6 00	6 00	6 00
APPLES—100 lbs.	4 50	4 50	4 50	4 50	4 50	4 50	4 50	4 50	4 50
POTATOES—100 lbs.	2 25	2 25	2 25	2 25	2 25	2 25	2 25	2 25	2 25
CARROTS—100 lbs.	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50
BROOM-CORN—100 lbs.	4	4	4	4	4	4	4	4	4
PEACHES, 100 lbs.	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
GRAPES, 100 lbs.	—	—	—	—	—	—	—	—	—
PEARS, 100 lbs.	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00
GRAPES, 100 lbs.	8	8	8	8	8	8	8	8	8
TOMATOES, 100 lbs.	50	50	50	50	50	50	50	50	50
GREEN PEAS, 100 lbs.	1 45	1 45	1 45	1 45	1 45	1 45	1 45	1 45	1 45
LETTUCE, 100 lbs.	75	75	75	75	75	75	75	75	75
GREEN CORN, 100 lbs.	75	75	75	75	75	75	75	75	75
LIMA BEANS, 100 lbs.	1 25	1 25	1 25	1 25	1 25	1 25	1 25	1 25	1 25
MAPLE SYRUP, 100 lbs.	5	5	5	5	5	5	5	5	5
MAPLE SYRUP, 100 lbs.	100	100	100	100	100	100	100	100	100
CIDER, new, 100 lbs.	—	—	—	—	—	—	—	—	—
MILK, 40-quart can.	—	—	—	—	—	—	—	—	—

Gold has been as low as 110 1/4, and as high as 116 1/4—closing September 13th at 111 1/4, as against 113 1/4 on August 13th. The marked decline in Gold very seriously depressed business toward the close, more especially in foreign merchandise other than Dry Goods and Groceries. The Breadstuff trade has been decidedly active, and on the whole buoyant as to values, with an unusually free export movement, though toward the close the fall in Gold tended to check operations. The purchases for shipment comprised large amounts of Flour and Wheat, in good part for forward delivery; as also of Corn, with fair quantities of Rye. The inadequate supply of freight room and the advancing rates claimed by shipowners have been somewhat against active export dealings. The receipts of Produce have been backward. Provisions have been in fair request, but closed time and weak in most instances. Cotton has been more confidently sought after, and quoted higher, though closing irregularly. The results of the late Cotton Crop—the year closing August 31 ult.—as officially figured up are a gross crop of 3,930,503 bales, out of which 2,679,986 bales were marketed abroad, and 1,250,517 bales taken for home consumption, leaving 49,395 bales as the difference in the stock on hand. Wool has been in much better request and firmer in price, particularly domestic produce, which manufacturers have been purchasing freely. Hays and Seeds have attracted more attention, and closed stronger. Tobacco has been moderately inquired for at full previous rates. Hops have been offered less freely, and have been quoted rather steadier in price, but closed irregularly on a limited business. We now quote this year's growth in our comparative table of prices. The crop of domestic wool saved is estimated at a yield of 55,000 bales, as against last year's yield of 65,000 bales.

New York Live-Stock Markets.

WEEK ENDING	Beef.	Cows.	Calves.	Sheep.	Swine.	Total.
August 18.	10,763	163	2,563	31,437	24,897	69,823
August 25.	9,966	93	2,430	25,531	27,413	70,866
September 1.	10,106	101	2,215	29,285	27,481	80,145
September 8.	10,100	43	2,216	28,696	28,358	81,238
Total for 4 Weeks.	30,225	498	11,220	117,792	131,682	301,816
do. for prev. 5 Weeks 46,218	589	15,660	138,479	155,572	346,218	

Beef.—For the four weeks under review the special features of the market have been the inferior average quality of the supplies, with nearly one-fourth of the entire receipts foreign or Texas cattle; the continuous sharp struggle on the part of sellers to hold prices up to a paying point, and a slow, dragging trade generally. Shop butchers have taken retail lots of prime and extra steers on each Monday's market at fair prices, and wholesale slaughterers who supply steamers and other regular customers with choice beef have paid remunerative rates for selected small lots; but Texans and common to medium native steers and oxen for the Washington market trade have ruled low throughout the month. For the last four days, with receipts amounting to 271 cars, or 4,643 head, largely Texans and common Western steers, the market has been dull and weak, with prices barely sustained. A few choice and extra beefs were sold at 12 1/2 c. @ 12 1/2 c. 1/2 lb. to dress 58 lbs. to the gross cwt., but the quotable range is 9 1/2 c. @ 12 c. 1/2 lb. to dress 56 lbs. and 57 lbs., for native steers; and 7 c. @ 9 1/2 c. 1/2 lb. to dress 54 lbs. and 56 lbs., for Texans.

WEEK ENDING	Range.	Large Sales.	Aver.
August 18.	6 @ 12 1/2 c.	10 1/2 @ 11 1/2 c.	10 1/2 c.
August 25.	6 @ 12 1/2 c.	10 1/2 @ 11 1/2 c.	10 1/2 c.
September 1.	6 @ 12 1/2 c.	10 1/2 @ 11 1/2 c.	10 1/2 c.
September 8.	6 @ 12 1/2 c.	10 1/2 @ 11 1/2 c.	10 1/2 c.

Milk Cows.—The continued surplus of milk in this city, selling at low prices, has prevented the usual demand at this season from dairymen, and the light offerings have been forced off with difficulty at non-paying prices. Just at the close, however, the extreme scarcity of good cows has stiffened the market, and the few offerings were selling at \$35 @ \$40—an advance of fully \$5 per head for the month. **Calves.**—The generally steady and firm demand throughout the season for fat veals has surprised every one in the trade. With slight fluctuations during the last month, good to prime veals have sold readily at 9 c. @ 9 1/2 c. 1/2 lb., with extras at 10 c.; and buttermilk and grass calves were also in demand with a quick sale at \$5.50 @ \$9.50 per head, the best going to \$12 @ \$13—and these are the closing quotations.

Sheep and Lambs.—The receipts have been more than ample, especially of lambs, and prices have ruled comparatively low. The quality has been better than for the previous month. Latest transactions in a dull market were at 6 1/2 c. @ 8 1/2 c. 1/2 lb. for lambs, and 4 1/2 c. @ 6 1/2 c. 1/2 lb. for sheep. **Swine.**—The supply has been fair both in numbers and quality. For the first three weeks under review prices were about steady, at the reduced prices noted at the close of previous report, but the light offering for the last three days has carried prices upward, and live hogs are firm at 5 1/2 c. @ 5 1/2 c. 1/2 lb., while dressed range at 6 1/2 c. @ 7 1/2 c.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

The Publishers' Pages.—Once a year the publishers occupy several pages in the paper. They make their annual announcements this month on pages 363, 369, 393, 394, 395, and 396. We have no doubt that a large class of readers find these pages quite as attractive as anything that the editors might furnish them. It is the business of the publishers to extend the circulation of the *American Agriculturist* as widely as possible, and it is that of the editors to give them something worth circulating. Mr. Judd, the original publisher, was the first in the agricultural press to offer good and valuable premiums to those who helped to increase his circulation. His success was remarkable, and the plan has been kept up and extended under all the changes of the publishing firm. The extent of the list of premiums, and the great variety of the articles offered, is not more noticeable than the fact that the articles are not only all good, but the best of their kind that can be procured. Knowing the great care exercised in this department, we take pleasure in referring our readers to the publishers' announcements upon the pages above enumerated.—Ed.

The Agriculturist in Tasmania.—So many pleasant words come to us from other countries and "the isles of the sea," that we sometimes think the title *American* might be changed to "Universal" or "Cosmopolitan." The following comes in a letter from New Norfolk, Tasmania: "Your interesting and valuable paper is much read in this remote part of the world, because you describe a great many difficulties that are not mentioned in English agricultural papers, and we have not an agricultural paper of our own as yet." The English papers are edited in the interest of large landholders. The people who work are not expected to read; hence we find that the *Agriculturist* is highly prized in the English colonies, where a different system of agriculture is followed from that in the mother country.

Gardening—Market-Gardening.—In spring and fall we are apt to have numerous inquiries concerning gardening in general, and especially from those who, having land, wish to turn it to profitable use. Of course we willingly answer such questions, but at the same time we feel that we can do all such writers a service by informing them of a book which they can not afford to be without—"Gardening for Profit," by Peter Henderson. Every one who cultivates a garden, even if it be only an acre, will find this work of the greatest service. Its author commenced his career as a market-gardener, and, to say the least, made it pay. Market-gardening must, of course, be carried on near a market, and consequently upon high-priced land. To make it profitable the land, except when frozen in winter, must be kept constantly at work earning something. The methods of effecting this, with all other matters relating to market-gardening, are more fully set forth in this work, than elsewhere. Being by one who has followed gardening for years as a business, it anticipates almost every question a novice will be likely to ask, and suggests many important things he would never think of. We know of no book that we can more cordially commend than "Gardening for Profit." Sent post-paid for \$1.50.

Anonymous Letters can not be noticed. We have more letters from those who are not afraid to sign their names than we can conveniently attend to, and letters without names must be disregarded. Please understand that we never publish a name where the writer wishes it withheld. Sign any name that suits the fancy, but give us the real one besides as an evidence that the writer is acting in good faith. If a line by pen or pencil is drawn through the name we understand that as a request that it shall not be published.

Death of Elias Durand.—Mr. Durand was a native of France, who came to this country early in life, and was long known as one of the leading pharmacists of Philadelphia. He died on the 15th of August last, in his eightieth year. He was an enthusiastic botanist and a most excellent gentleman.

Earning His Breakfast.—A correspondent in Wheaton Co., Washington Terr., who is evidently a post-master, writes: "The steamer arrived about two o'clock, and after changing the mail I took my gun and fire-jack and walked out into the oat-field about two hundred yards from the house, shot three large ducks, and returned to the house before daylight."

Humbugs are crowded over to page 398.

Try It.—There are thousands of families in this country who want a carefully edited family paper—one whose influence upon every reader will be pure, instructive, elevating.

The publishers of *HEARTH AND HOME* are determined to supply this want. That paper is edited specially for the family. Not a line is admitted to its columns that can be in any way objectionable to the purest and most cultivated taste. Its stories, while always of absorbing interest, are ever healthful in their influence upon the reader—stimulating to higher aims and nobler purposes in life; its sketches are full of interest and instruction; its editorials treat with candor and perfect independence the leading topics of the times—moral, social, literary, political—discussing them not as a partisan, but with the fairness and frankness and the conscientious regard for the opinions of others that characterize similar discussions among cultivated people in the business or social circles.

In short, it is the aim of the publishers to make *HEARTH AND HOME* the best family paper in the world; and in order to bring it to the notice of the thousands of families who want such a paper, they propose sending it on trial to any address four months for one dollar, commencing with the first number of Mr. GEO. CARY EGLESTON'S new story, entitled *ROBERT PAGEDROOK, the Man of Honor*, which will be commenced in *HEARTH AND HOME* about the first of October, and will continue for about three months.

We ask the special attention of every reader of the *American Agriculturist* to the publishers' announcement of this proposition on another page.

English Sparrows.—"Subscriber." It is very probable that English sparrows might be of great service in reducing the numbers of insect pests with which farmers and fruit-growers are troubled. Notwithstanding the outcry made by English people against the depredations of birds, it is very true that they are really doing more harm from insects compared with ourselves. However, we do not desire to be understood as recommending the introduction of these birds into the rural districts. It may be that they would be worse than the ills we already have. If "Subscriber" desires to have some of these birds they can be procured in New York for \$3 a pair or \$25 for 10 pairs.

Correction.—On page 326 of September *Agriculturist* the type made us say that *Trifolium pratense* is commonly known as Rabbit's-foot or Passey-clover. It should have been *Trifolium arvense*.

Plantains in Lawns.—"Old Subscriber," Passaic, N. J. We have found that with frequent mowing the grass will crowd out plantain and all other weeds. We had as bad a piece of lawn as one could wish, but by keeping up the mowing, fertilizing with bone or superphosphate in spring and fall, and sowing seed wherever the grass seemed weak we have brought it into a nearly perfect condition. In England sulphuric acid (oil of vitriol) is used and strongly commended for killing plantain. A wide-mouthed bottle fastened to a stick, so as to have it near the ground, contains the acid, and by means of another stick a drop of the acid is placed directly in the heart of the plantain. Of course this should be used by a careful hand only. We have not tried it.

Window Gardening; edited by Henry T. Williams, and published by the same: New York.—This work appeared last year, but was not noticed in these columns for reasons which it is proper that we should state. When we received a copy for review we found to our astonishment that it contained several of our horticultural devices without a word of credit as to their origin. Had we given our impressions of the work we should have used some very strong language. Mr. Williams and ourselves being both publishers of horticultural books, any "pitching in" on our part might be attributed to a wrong motive, and we kept silent and did not notice the work at all. We have since learned that Mr. Williams is quite free from blame in the matter. That meanness of all papers extant, *The Farmer* (London and Edinburgh), had, as is its nature so to do, taken our articles and illustrations and published them as its own. Mr. Williams, not knowing that it was possible for a journal to play the part of a sneak-thief, supposed that the matters were original with *The Farmer* (that the name should be so prostituted!), made use of them, and acknowledged in general terms his obligations to that

paper, without specifying what particular things he had taken from it. We take pleasure in saying that Mr. W. has been perfectly fair in the whole matter—but what can be said of that English thing? As to the book itself, of which Mr. Williams appears as the editor rather than the author, it being made up of contributions by people of more or less ability, we can only say it is the best we have. It has two faults: there is too much of it, and it lacks an index. Had the same material been concentrated, and three-fourths of the abundant illustrations omitted, the book would at the same price (\$1.50), have been more valuable. At all events, it contains a great deal of useful information, and so far as we have examined it, the directions are full and safe. It is a large duodecimo of 300 pages, and in the way of paper and mechanical execution leaves nothing to be desired.

The Campbell Duchess Sale.—For a full report of the most remarkable sale of cattle that ever took place in any country see page 393.

Diseased Apple-Leaves.—"C." of Frederick Co., Va., and others have sent us specimens of apple-leaves which are infested by a fungus. So little is at present known of the best methods of preventing or erasing this evil that it is doubtful if any one can prescribe a remedy. The whole matter of minute parasitic fungi needs thorough study before they can be intelligently treated. Sometimes the trouble seems to be only temporary, and again to persist for years, the tree gradually weakening on account of the diminished vigor of the foliage. In the case of "C." it is confined to two trees of the same variety, and as it has appeared for some 12 or 15 years we should in our own case cut and burn the trees for fear that the fungus might spread.

The Buckeye Mowers and Reapers at Vienna.—The Buckeye machines have been awarded two "First Premium Grand Medals of Merit" at the Vienna Exposition, in competition with other machines from English and French manufacturers as well as the leading American machines. The Buckeye, therefore, may well be supposed to keep up with every modern improvement notwithstanding the fact that it is one of the oldest standard machines.

Marks of a Jersey Cow.—W. H. Rnnd. Jersey cows frequently exhibit a variety of color. There are pure white, white and fawn, white mingled with red, brown, grey, or black, and some wholly of these darker colors. The prevailing colors, however, are white, fawn, and gray. A wholly mouse gray is also not unusual. Therefore it may be said, leaving fancy out of the question and considering only utility, that a good Jersey cow may be of any color. Her peculiar points of shape, figure, and some markings, however, will determine her purity of blood. It is considered best to keep these cows always in breeding and not to permit them to become farrow. Precocity and prolificacy are characteristics of the Jerseys.

Fair Lists.—Last month (September) we gave a very full list of the various fairs to be held this year. Since then other names have been sent us, and we present them in a supplementary list upon page 398.

The Largest Manufactory of Patent Roofing in the United States is located at Hunter's Point, N. Y. The premises cover some 30,000 square feet of ground. The business has grown up from small beginnings, having been established on a very moderate scale by Mr. H. W. Johns in 1858. From the start it was not only pushed with energy, but with a determination to furnish the best roofing of the kind which could be made and continued, and costly experiments have been made to improve the article. The sales of Johns' roofing have increased year by year until at present about nine million square feet of roofing per year are turned out from this factory. An important improvement introduced is the use of Asbestos in the composition for covering the felt. Several of the largest Railroad Companies, as the Pennsylvania Railroad, the Delaware, Lackawanna and Western, Chicago and North-western, and others are using it extensively.

Crumbling or Decay of Chimneys.—"B. R. D." writes: "When this is occasioned by the acid issuing from wood burning very slowly and imperfectly, as in an air-tight stove or a stove with a great length of horizontal pipe, as described in the *American Agriculturist* for August, I have understood that a coating of good clay mortar inside the chimney would be a preventive."

See Pages 393 to 396.

The Man of Honor.—Natural, true to life, full of interest from first chapter to last, and withal teaching a sound morality, are the characteristics of HEARTH and HOME stories, and Mr. EGLESTON'S new story, ROBERT PAGEBROOK, the *Man of Honor*, will be no exception to this standard. We heartily commend it to every reader of the *American Agriculturist*, and ask them to commend it to their friends. As per announcement in another column, it will be commenced in HEARTH and HOME about the first of October.

Corn and Hay.—"Subscriber," Allenton, R. I. The theoretical value of corn as food in comparison with hay is in the proportion of 80 to 64. That is, 100 pounds of corn possess 80 parts of substance valuable for nutriment, and 100 pounds of hay possess 64. Hay is of greater value when cut early and well secured than when cut ripe, and early hay, of course, is meant in this comparison. Then if hay is worth \$30 per ton corn is worth $\frac{64}{80}$ of that price, which is \$37.50 per ton for feed, which is equal to \$1.13 $\frac{1}{4}$ per bushel. Corn then, at 65 cents a bushel, is the cheaper feed. But practically it will not do to feed corn wholly, as it is too concentrated, and some coarse fodder, as straw or stalks, should be fed along with it.

Superphosphate for Wheat.—"Young Farmer," Yaddin Co., N. C. The action of superphosphate when applied in the fall is often imperceptible in the crop for the reason that the phosphoric acid meeting lime in the soil returns to a condition of insoluble phosphate, which acts very slowly. There are other reasons for disappointment which may be greatly avoided by sowing part of the superphosphate with the seed and the other part in the spring, when the wheat should be harrowed or rolled. We have had better results by using 100 lbs at sowing time and 150 lbs in the spring per acre than from 250 lbs in the fall.

For Fairs to be held this month and later see page 398.

Size of a Good Farm.—"W. D.," Austin, Texas. The amount of land necessary for a farm that can be carried on in the most economical manner is from 300 to 500 acres. In the hands of a perfectly competent farmer, who has sufficient capital to stock such a farm with six or eight mares, 20 to 50 cows, or more if he raises soiling crops and feeds a considerable number of hogs and sheep, and who can procure plenty of trustworthy help, such a farm would furnish perhaps the best opportunity for the cheapest and most profitable methods of working. A farm of less than 100 acres is enough, if the farmer does his own work with occasional help.

Scaly Legs in Poultry.—L. Horning, Montgomery Co., Pa. When old fowls are troubled with swollen scaly legs they had better be fattened for market. If they are young saving a solution of concentrated lye applied to the legs sometimes brings about a cure. But preservation from damp and filth is a good preventive.

Building a Dairy.—"E. F.," Providence. In arranging for a dairy in which water is to be pumped from a well into the cooling tank we would not permit the waste water to escape back into the well. Neither would we use tarred paper to cover the boarding, for the reason that the milk and butter will undoubtedly receive some taint; paper free from tar can be procured, which is equally serviceable. In fact, we would not use coal-tar about any part of the building. Coal-tar will not disgust rats unless it is made into a cement through which they can not penetrate. Rats are only disgusted with impossibilities, and a cement of hydraulic lime and coarse cinders or broken clinkers or finely broken stone, on which their claws and teeth can make no impression, will alone disgust them.

For Chicken Cholera.—"W. R.," Carroll Co., Md., sends the following as a cure for chicken cholera: Take half a pound of sulphate of iron and one ounce of sulphuric acid, and dissolve in two gallons of water. One pint of this liquid is added to one gallon of water, and corn-meal is added to it until a dry, hard dough is made. The dough is then fed to the fowls.

Farm Labor.—"E. J. M. C.," Pope Co., Ill. We would not recommend any farmer to base any hopes on procuring Chinese as farm laborers. They are used to some extent in California in binding grain and doing other mechanical common work, but they have no virtues which white men do not possess, and they have all their vices, and some more which are peculiar to

themselves. It may be that very soon an organized plan for the introduction of skilled farm labor from Eogland will be set on foot, and agricultural associations, both State and County, may we hope have an opportunity of taking part in such a movement.

Soda or Potash.—"E. H.," Lancaster, Mass. Because soda and potash are both alkaline substances it does not follow that one will take the place of the other as plant-food. If the alkali is made to serve the purpose of dissolving vegetable or mineral matter and making that more readily available for the plant's use, then soda, potash, or lime may be equally beneficial. But potash and lime enter largely into the composition of many plants—as potatoes, clover, peas, etc.—while soda does so only to a very limited extent. In these cases soda can not fill the place of the other substances, and of course soda-ash could not in them be usefully substituted for wood-ashes.

Water Pipes.—"R. A. V." On the whole, the most durable and satisfactory water pipes are those of cast-iron. Where there is a head of 150 feet, which gives a pressure of 75 pounds or thereabouts per square inch, they would be the most substantial; and where there is a continuous flow of water there is very little oxidation. What oxide is produced is insoluble and innocuous. Pipe of 3 in. diameter, $\frac{1}{4}$ in. thick, weighs 8 $\frac{1}{2}$ lbs. per foot; 8-inch pipe, $\frac{1}{2}$ in. thick, weighs 40 lbs. per foot. Its cost is somewhere about three or four cents per pound in large quantities. Paterson and Passaic, N. J., use water pipes of sheet-iron lined with cement.

Cough in a Horse.—"Subscriber." There are many causes for cough in horses. It however arises from some irritating source which should be sought for and removed, when the cough will cease. If it is attended with running at the nose it may be caused by a cold, in which case it will be best to give bran-mashes at night with half an ounce of saltpeter, and feed boiled oats or scalded feed slightly warm. The stable should be kept cool, and the horse blanketed for a few days. If the cough proceeds from indigestion, which it is very apt to do, the feed must be changed; soft or green food should be given, with an ounce each of ginger and gentian and a dram of copperas daily for a few days.

Stump Extractor.—"H. D.," Montgomery Co., Pa. There are two or three very excellent stump and rock-lifters made. The "Excelsior" is a good one, so is the "Little Giant," but we can not give you the makers' addresses. Probably they will do so in the usual manner.

Tan-Bark on Land.—"E. B.," Franklin Co., Pa. We do not recommend the use of tan-bark on land in its raw state; but we should mingle it with lime and decompose it, or burn it and use the ashes. These are the only ways in which we ever got any good from it. By these methods it may be made useful as a dressing for grass lands.

China Pigs.—"W. G. S.," Cumberland Co., Pa. We do not know where pure China pigs are to be procured, nor can we conceive why they should be preferred when we have the Berkshire, the Essex, and the Magic, or Poland-China, and the Suffolk. Here is a variety which can meet all tastes and serve all purposes, and all of these breeds are valuable.

Alabama State Agricultural and Mechanical College.—This institution, situated at Auburn, Ala., sends out a circular asking for drawings, models, plans, etc., of roads, buildings, or machinery for the use of students. They will accept such articles on deposit or as a gift.

Impregnation of Eggs.—We have received several letters in reference to our remarks in a former number about the impregnation of turkeys' eggs. Those who favor us with their experience on this matter will confer an additional favor on us by giving their name and address, not for publication, but to authenticate their communication.

Burning Caterpillars.—"G. M. R.," N. J. A touch of kerosene or other inflammable liquid is an old appliance to destroy caterpillars. Unless used with care it will injure young wood and buds. Where the nests can be reached with or without a ladder they are easily and effectively removed by the hand.

Diarrhoea in a Colt.—"Irwin." A colt that suffers with scours should have rice-milk given to it. In case of a young sucking colt, it would be advisable to feed powdered chalk or carbonate of magnesia in the

mare's feed. The colt should be given half a pint of milk in which a tea-spoonful of rice-flour has been boiled and to which half a tea-spoonful of prepared chalk with half a tea-spoonful of ground ginger are added. Probably one dose will be effective; if not it should be repeated in two or three hours. If it does not then produce a relief, ten drops of laudanum or ten drops of oil of peppermint may be added to the preparation.

Fire-proof Roofs.—"J. N.," Pendleton, S. C. Just now is the very best time to prepare a roof for winter. Being dry, the shingles will absorb more of the preparation, and its effect will be so much greater. One of the best methods of fire-proofing a shingle roof is to cover it with hot coal-tar. The first coat will be absorbed into the shingles. The second should be covered with fine sand, well heated in an iron kettle, and scattered upon the soft tar in sufficient quantities to absorb it. Such a roof is comparatively cool, because the sand reflects the heat of the sun in a great measure, and it is proof against fire from sparks from the chimney.

See Pages 398 and 399 for Humbugs, Fairs, the Great Campbell Cattle Sale, and other items.

Old Potatoes and New.—"F. T. C.," Lycoming Co., Pa. New tubers growing upon and within old ones very often occur, and we have in years past figured several freaks of this kind.

Trouble with Apples.—"W. A. J.," Morrisania, N. Y. It is the Codling-moth that destroys your crop. A moth lays its egg in the blossom end of the young apple. The "worm" hatches and eats its way into the fruit and in time causes it to drop. Unless the whole apple-growing community will agree to pick up and destroy all fallen fruit, and thus kill the "worm," we can not offer you any remedy with your single tree. Salt and other applications to the tree will not do the least good. The "worm" in the apple has nothing to do with the borer in the trunk.

"The Laughing Plant."—A lady at Port Gibson, Miss., sends us a newspaper slip which gives an account of a plant growing in Arabia the seeds of which cause those who partake of them to laugh violently and to behave in an extravagant manner, and asks for further information. The ways of the ordinary newspaper in matters relating to botany or any other science are past finding out, and their accounts of matters like this Laughing Plant are likely to be highly extravagant. There are several plants which will produce delirium, especially among the Night-shade Family. The accounts given by the early visitors to this country of the effects of the common Stramonium or Jamestown-weed are quite as extravagant as this of the Arabian Laughing Plant.

"Buggy Peas."—A farmer asks us what he had better do with "buggy peas." There are several plans recommended for killing the bug—or, more properly, weevil—but the best thing a farmer can do with peas affected with the weevil is to feed them out as fast as he can. Pigs will eat the peas and weevils together and grow fat on them. If fed out before the middle of November there will be comparatively little loss.

A "Golden Morning-Glory."—Dr. A. Kellogg, a most industrious and enthusiastic botanist of San Francisco, describes and figures in the California Horticulturist a new member of the Convolvulus Family under the name of *Aniseia aurea*. This is a new discovery by Prof. George Davidson, made in Lower California. The leaves are five-parted, and the flowers about the size of the ordinary Morning-Glory, yellow, with a purple throat. The Doctor, who describes the plant in his usual poetical style, intimates that it is a perennial, and we hope to hear more of it. We are glad to see that the California Horticulturist shows evidence of prosperity, and hope it will give us more California novelties.

To Use Old Plaster.—"Ground Turner," Brighton, Mass. The best method of using a lot of old plaster (mortar) in an orchard is to pulverize it as fine as possible and spread it over the ground at once. If the ground is to be plowed the plaster should be spread after plowing and harrowed in. It should be kept as near the surface as possible, as lime is given to sink rapidly.

Harvesting Peas.—"W. P. T.," of Clearfield Co., Pa., wishes "a few plain, practical directions how to harvest peas." We cut our own peas with a Johnston reaper, turn them once or twice, and draw in. That is all there is to it.

See Pages 393 to 396.

Land Sales.—We are informed that the Union Pacific Railroad Co. sold 20,599 acres of land at an average price of \$6.73 per acre during the month of July.

A Bad Catch of Grass.—"Subscriber," Waverly, N. Y. A seeding of grass and clover that failed to catch by reason of the severe drouths of the past summer can hardly be remedied this season. But the ground may be harrowed and seeded again next spring and the seed brushed in. If the ground is in good condition a fair crop may be saved, if not some manure will be needed. If the ground is weedy a plowing this fall should be given.

Artesian Wells.—"A. C.," Carbondale, Pa. There is no work which specially treats of artesian wells known to us. The principle on which they are made is explained in the *Agriculturist* for March, 1872.

St. Joseph and Denver City Railroad Bonds.—In reply to many inquirers about the position of the holders of these bonds, we would say that at a meeting of bondholders recently held in New York, it was decided to take measures to foreclose the mortgages and to procure possession of the road and other property covered by it as soon as may be. There is ample security to cover the amounts of the mortgages on both eastern and western divisions of the road.

Cats Killing Chickens.—"Nettie A.," Branch Co., Mich. It is a natural propensity in cats to kill birds, and chickens fall victims thereto. Neither is it done to satisfy the hunger, but the native ferocity and destructive habits of the animal impel it to kill animals smaller than itself. The only remedy we have found partially effective is to watch the cat, take it in the act, recover the chicken from it, and administer a punishment. But some cats can not be cured of the propensity; and if the chickens are worth more than the cat, the cat should be executed.

The New England Fair.—Whether this fair should be called agricultural or not is a question which admits of consideration. An agricultural fair would by most people be supposed to have for its chief object the illustration of agriculture and the exhibition of agricultural products. Now a race-horse as such, harnessed to a trotting sulky, is not a conspicuous object on the majority of farms; nor do farmers thus ride when occupied with their ordinary avocations. There are no few several thousand dollars offered as purses to be trotted for and a vast array of fast horses, jockeys, and racing paraphernalia very freely exhibited, and in the corner of a tent obscurely laid out as if ashamed of itself a collection of vegetables and farm products which would no more than fairly grace a huckster's stall in a country market, we are in doubt whether we are really in an agricultural fair or not. Thus was it with the fair of the New England Agricultural Society, which pretends to represent the agricultural interests of six states. New England agriculture is said to be degenerating, and the farmers have been charged by a well-known speaker in an address before the State Board of Agriculture of one of these states with dense ignorance. Although we call this a libel upon the farmers utterly without excuse, yet were it a self-evident truth, its existence would go far to be excused and accounted for by the course pursued at these so-called agricultural fairs. The most valuable opportunities for informing and educating farmers that an agricultural society can enjoy are on these occasions wasted, and worse than wasted, by turning them into racing fairs, and teaching farmers who attend them the idea that there is no other object attainable than this questionable amusement. A horse is certainly an agricultural animal, but a race-horse is not, and a horse-race is not an agricultural employment. Therefore while horses are in place at an agricultural fair along with other farm stock, they are only legitimately so as such. The cattle on exhibition at Mystic Park were better than usual, but not nearly equal to what should be expected from New England. Owners of fine stock do not care to become exhibitors in competition with race-horses, especially when they have such a poor opportunity. The poultry was passable, but the fruit and vegetables were exceedingly few and far between. On the whole, the Society is not to be complimented on its agricultural fair of 1873.

Hen-Manure on Wheat.—"J. W. P.," Fredericksburg, Va. Hen manure may usefully be applied to wheat at this season. If the manure is mixed with an equal quantity of plaster very evenly, and made quite fine, it may be sown broadcast at the rate of four bushels per acre on the young crop. The more evenly it is sown the better will be the effect.

Cooling Milk.—Mrs. "W. H. McC.," Stamford, Ct. It is not the cooling of the milk by set-

ting the cans in cold water that prevents the cream from rising. If the milk is set in a cellar where there is not ample ventilation that is a sufficient cause, but probably the cause is nearer still and is to be looked for in the milk itself. The cow's feed should be looked to, and some that is rich in oil, as oil cake meal or corn-meal, be added to it.

Making Poudrette.—"P. B.," Plymouth Co., Mass., proposes to mix hen-manure, night-soil, and soap-suds with loam, into the consistency of a mortar and then spread it upon boards to dry. He asks is this a good plan, and how much of the dry material may be used per acre.—We do not approve of the soap-suds, which in such a mixture would dissipate some of the ammonia. We would add more plaster and dry earth in equal quantities to the other materials until the moisture was absorbed, and then pack it in tight barrels until used. Five barrels per acre would be a fair quantity.

The Deep Can System.—Mrs. "W. H. McC." In setting milk in the deep can and cooler system the cream is skimmed as on any other plan of setting. The whole process is explained in the *Agriculturist* of May, 1872, which can be had for 15 cents.

Sheep Dip.—"N. M. K.," Nevada, Ohio. The best sheep and lamb dip is the carbolic dip. It may be procured of the Orange Judd Co., 245 Broadway, for \$3 per 10 lb can, enough for 50 to 100 head.

Nasal Gleet.—"L. McKie," Frankfort, Ky. Nasal Gleet consists of a discharge from the nose caused by an excessive secretion of a liquid whose office is to lubricate and moisten the membrane lining the cavities of the nose. If not stopped it may very probably increase in virulence and eventually end in death. At first small doses or a dram of sulphate of copper given twice a day in the food with half an ounce of powdered gentian root will often make a permanent cure. If of long standing and the horse is also out of condition the advice of a veterinary surgeon should be sought. It may be taken as a sign of a debilitated constitution.

The Mennonites.—A large body of Russians belonging to a peculiar sect of Christianity known as Mennonites have arrived in Harvey Co., Kansas, having purchased lands on the Atchison, Topeka and Santa Fe Railroad. These people will be an acquisition to the state of their adoption, being of a remarkably moral, industrious, and thrifty character. The present arrival is the advance guard of the whole community it is said, who leave their homes on account of their objection to conscription into the Russian army.

Leg Weakness in Fowls.—"C. G.," Plymouth, Ct. The cause of leg weakness or inability to stand in young chickens is want of proper food to stimulate a proper muscular growth. If wheat, buckwheat and animal food, as worms or chopped meat, is given the weakness will be prevented. It will also probably be cured by the same treatment with the administration of three grains of sulphate of iron daily in scalded bran. Broken bones, crushed oyster shells, and plenty of gravel, should be given as a preventive for the future.

Shall We Plow Deep?—"W. J.," Reed City, Mich. If your land has a subsoil of pure sand, deep plowing will be an injury to it. If the surface soil is a light loam, the subsoil will only render it lighter if mixed with it, and nothing but the surface soil need be stirred. Indeed, there are very few soils that are benefited by deep turning, although there are few but what are improved by deep stirring. Yours needs neither deep turning nor deep stirring.

Progeny of Half Breds.—"Inquirer." The progeny of a half bred mare by a half bred horse will as a matter of course be half bred. In this case "like produces like" exactly. Each parent can not give more than it possesses nor can it give less.

Crops on Swamp Land.—"B. A. E.," Craven Co., N. C. The reclamation of a swamp to a condition of productiveness can not be successful without perfect underdrainage. Swamp muck or peat is as absorbent as a sponge, and if open ditches only, and those at considerable distances apart, are made no deeper or not so deep as the subsoil of clay or quicksand, the swamp is not drained at all. This is a frequent cause of failure in reclaiming swamps: and although at first they may produce a heavy crop of grass, it is without substance, poor and wasteful to feed, and it is soon run out by wild grass again. The only plan that we have found successful is to dig at the head of the swamp deep enough

below the subsoil to cut off all the springs. This may need a ditch six feet deep possibly, but it must be done. Then a cross drain from this to the outlet must be made, and laterals across the swamp discharging into this cross drain. As soon as the subsoil is drained and the water table lowered beneath the bottom of the muck, the swamp is ready for cultivation. Heavy dressings of lime are needed, and sand would be a useful addition to it; but with lime grass and clover may be grown for many years and no other manure will be needed. After a few years, when the muck has been well decomposed, corn or oats may be taken, but such lands are not suitable for wheat. Excellent potatoes have been grown upon them, however, and also turnips, but grass is the most suitable crop. Orchard grass, timothy, and clover, would probably be the most profitable.

The Perfect Horse.—The Rev. W. H. H. Murray, who is a Boston clergyman of excellent attainments and reputation, and is also known as an ardent lover of nature in her wilder moods, and as the author of a work on sporting in the Adirondacks, has written a book entitled "The Perfect Horse." In this book Mr. Murray teaches doctrine so sound and so orthodox that we can not do a better service to our readers than advise them to procure and study it. As it comes to us just as we go to press, we can only record our favorable impressions, and hope to give the work a more extended notice another month.

Northern Pacific Railroad.—At a meeting of the Board of Directors recently the following resolution was passed: "Resolved, That the Northern Pacific Railroad Company locate and construct its main road to a point on Puget Sound, on the southerly side of Commencement Bay, in Township 21, Range 3, east of the Wallmuth meridian, and within the limits of the city of Tacoma, which point in said city of Tacoma is declared to be the Western terminus of the main line of the Northern Pacific Railroad."

Linseed Oil-cake for Cows.—"J. P. N.," St. Louis. A reader of the *Agriculturist* of several years' standing can not surely have failed to read much about the value of linseed oil-cake meal for cows in milk. If such a one has strangely failed to see our repeated mention of this most valuable feed he should at once refer to his back volumes. The large business now done in linseed in St. Louis should result in producing great quantities of cake, which might very profitably be used in the dairies and stock yards at home, instead of allowing it to be exported to England for that purpose.

Roup in Chickens.—"L. H.," Steubenville, Pa. The disease known as roup in chickens, and which appears in a discharge from the nostrils and eyes, leading to swelling of the head by reason of an accumulation of matter which can not find escape, is better prevented than cured. Warm, dry coops, preventing the chicks from running in the dewy grass, good feed, plenty of fresh water with a little copperas dissolved in it, all tend to prevent the disease. A cure is very difficult, and as the disease is contagious it is better to kill and bury out of sight all rony fowls as soon as they become affected. At first, washing the head with warm water and injecting into the nostrils a solution of 10 grains of sulphate of copper in an ounce of water with a syringe may bring a cure.

Co-operative Store.—We learn that a co-operative Store Society has been in existence for a year in Sedalia, Mo., with abundant success. The society was organized mainly upon the plan which has been found so successful in England and Scotland, and on which now over a thousand similar associations are in profitable operation. At the end of nine months' business the daily sales of the Sedalia store were over \$78, and a stock dividend of 10 per cent and a sales' dividend of 3 per cent were made. The success of this pioneer co-operative store ought to lead to the organization of others wherever practicable.

Farcy and Catarrh.—"W. R.," Carroll Co., Md. In an obstinate case of farcy administer an ounce of sulphite (not sulphate) of soda to the horse daily in the morning feed. In the evening give a dram of sulphate of copper with an ounce of gentian root for a week. For a week or two afterwards give 30 drops sulphuric acid in the water drank night and morning. Dieting in this case is very often of more effect than physicking. In a case of obstinate catarrh give the sulphite of soda and gentian and sulphuric acid without the sulphate of copper. Bran mash, soft feed, and clean, sweet stables, will be also helpful.

See Pages 398 and 399 for Humbugs, Fairs, the Great Campbell Cattle Sale, and other items.

Why? Why? Why? Why?

HAS THE

American Agriculturist

ATTAINED SUCH AN

Enormous Circulation?

Answer No. 1: Because

For the Farmer,

For the Family,

For the Gardener,

For the Pomologist,

For Stock-Breeders,

For Grain-Raisers,

For Wool-Growers,

For Poultry-Breeders,

For Grape-Growers,

For Horse-Keepers,

For Peach-Growers,

For Pork-Raisers,

For Fruit-Growers,

For Seedsmen,

For Dairymen,

For Florists,

Husbands,

Wives,

Fathers,

Mothers,

Boys,

Girls,

Young Men,

Young Women

Merchants,

Traders,

Ministers,

Mechanics,

Lawyers,

Doctors,

Teachers,

Students,

Artists,

Poets,

Inventors,

Artisans,

Draughtsmen,

Engravers,

For Rich,

For Poor,

In City,

Country,

Town,

Village,

Hamlet,

Home,

North,

South,

East,

West,

Everybody,

Everywhere,

IT
IS
THE
Best
Paper
IN
THE
World.

Answer No. 2.

Because every **Farmer, Gardener, or Amateur** tiller of the soil who works one acre or a thousand, for Grain, Vegetables, or Stock, East or West, North or South, can be greatly assisted and benefited by the reading of the *American Agriculturist*. Every member of every family can find in its various departments for the Farm, the Garden, the Household, and the Children, instruction, entertainment, and amusement, without being contaminated with anything impure or demoralizing. It treats of Vegetables, Flowers, Fruits, Trees, Shrubs, and Plants. It treats of all machinery and machines suitable to agricultural purposes; and of chemicals and minerals that conduce to the welfare of Farmers, Housekeepers, and Mechanics; in fact, it affords instruction and amusement to everybody old or young.

Answer No. 3.

Because, like all the other publications of the Orange Judd Company, its tone is elevating.

Whoever reads the *American Agriculturist* will become not only wiser but better. For while it is not technically a religious paper it unfolds Nature and Art, and whoever is brought face to face with Nature and Art must feel their refining influences. The fact that vast numbers of publications are flooding the land with pernicious stories and corrupting intelligence renders the *American Agriculturist* a welcome visitor in every virtuous household.

Answer No. 4.

Because it promotes *taste*. Life, and especially farm life, would be dull and prosy if such a paper as the *American Agriculturist* were not a constant visitor, not only with its volume of intelligence, but its lavish display of beautiful pictures. The readers of the *Agriculturist* would be surprised to see the large corps of engravers all busy every day preparing pictures of flowers, fruits, animals, machinery, etc., for their pleasure. It may never be known how many children, by studying our pictures, have themselves been made artists!

The aged, whose sight has become too dim for reading, may find abundant instruction in the pictorial lessons which the publishers furnish them in the *American Agriculturist*.

Answer No. 5.

Because the *American Agriculturist* is not only instructive and pure and beautiful, but it is *cheap*. Let the reader search through all the periodical literature of this and other lands, and where will he find such a mass of instructive reading for **one dollar and a half per year** as can be found in this great favorite! Its price places it within reach of every man, woman, and youth on the continent. In fact, to render it universal in its circulation, the publishers have concluded to renew their previous offer of **\$1.25 each, in clubs of four; or \$1.20 each, in clubs of ten; or \$1 each, in clubs of twenty or more.**

Now, then:

Although the circulation of the *American Agriculturist* is so wide, there is room for more subscribers. To add to the inducements already offered, the publishers will furnish a beautiful Chromo to every subscriber. See particulars in another column.

Now, again:

Besides the Chromo, the publishers now offer **Two Months' Subscription Gratis**—that is, persons subscribing singly or in clubs for all of the year 1874, whose subscription is received in October, shall have the paper for the months of November and December without charge. This is the time to subscribe, as you will thus *save money*—one year and two months for the price of one year!

Now, therefore:

What is the conclusion? It is this:

Reader, if you value the *American Agriculturist* and hail it as a welcome friend, you will co-operate with the publishers in still further spreading its circulation. Begin by subscribing yourself; then call on your next neighbor. If successful with him, go further and add two more. You will thus have *four*, which brings the price down to \$1.25 each. Keep on until you number ten at \$1.20 each, or twenty or more at *one dollar each*.

What elements of happiness will you have infused into your neighborhood by your effort!

Wonderful Circulation

OF THE

AMERICAN AGRICULTURIST.

The *American Agriculturist* can justly use the words of John Wesley,

"The World is my Parish."

It not only penetrates with its gleaming face nearly every city, village, and hamlet in our own GREAT REPUBLIC, but it is a welcome visitor to nearly all the NATIONS OF THE GLOBE. Its universal circulation ranks with the BIBLE and PILGRIM'S PROGRESS. It should be an interesting fact to the home reader of the *American Agriculturist* that the copious knowledge in **Agriculture, Botany, Horticulture, Architecture**, etc., which gladdens his household is diffused among the citizens of the following countries:

ENGLAND.	AZORES.
SCOTLAND.	BRAZIL.
IRELAND.	CHILI.
FRANCE.	SANDWICH ISLANDS.
SPAIN.	SOUTH AFRICA.
ITALY.	WEST AFRICA.
GERMANY.	CUBA.
SWITZERLAND.	BERMUDA.
AUSTRIA.	ST. HELENA ISLAND
BELGIUM.	SOUTH AMERICA.
NORWAY.	HONDURAS.
SWEDEN.	MEXICO.
INDIA.	BRITISH COLUMBIA.
CHINA.	CANADA.
AUSTRALIA.	NOVA SCOTIA.
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That Very Valuable Premiums are offered (see page 393) to those who take the trouble to gather up and forward clubs of subscribers. These Premiums are to pay for the time and trouble taken in gathering and forwarding the subscriptions (and good pay they are). The subscribers themselves will each get the \$5 picture, and new ones coming in now will get the extra numbers free.

The Bolt Nuisance.—We have often rebuked the persistency with which manufacturers of agricultural implements will continue to use round-headed bolts in their machines, which, when they come loose, are next to impossible to be tightened. It is easier to find fault than to suggest a remedy, at least very often, but we are glad to have to say that this nuisance and loss arising from the use of bolts that turn in the hole, and nuts that become loose and get lost, may be completely avoided. The Lock-nut Bolt is the "Cunning" bolt for agricultural machines. By the use of a copper wire key inserted into a groove in the bolt the nut when screwed up may be locked so that no jarring can loosen it. A wrench, however, will loosen the nut with ease. Farmers now should insist that every machine they purchase is put together with this "lock-nut bolt," and thousands of dollars in the aggregate will be saved yearly, to say nothing of the peace of mind they will have secured.

The New Secretary.—The American Pomological Society celebrated its 25th birthday by taking unto itself a new secretary in the person of Mr. W. C. Flagg, of Alton, Ill. We congratulate the Society upon this selection, as in Mr. Flagg they have an officer who is in every respect a gentleman. Scholarly in his tastes, Mr. Flagg is a fruit-grower, and in his pomological writing gives a happy combination of the literary and the practical. His knowledge of fruits is very full, and, take him for all in all, we know of no one in the country more worthy to be honored by the appointment than Mr. Flagg. We are sure that all the members of the press will accept this election with great satisfaction. We feel warranted in assuring the "Agricultural and Horticultural Press" that W. C. Flagg will never use the official reports of the Society as a medium through which to express his "remarks."

Gratifying Results.—Some twelve years ago, Mr. David Lyman, since deceased, exhibited at the office of the *American Agriculturist* one of the first made of the Universal Wringers. A trial of the implement at that time convinced us of its great utility in the household, and we readily adopted it as a most desirable premium. It has remained on the list up to the present time, and we have given away hundreds of them, and in not one instance have they failed to prove as represented. Our good opinion of them has been increased by the improvements which have from time to time been added, and we know of no implement that will be more sure to satisfy all purchasers. By judicious and liberal advertising the sales have steadily increased until they have become enormous. The President of the company, Mr. R. C. Brownrigg, informs us that in August, a poor business month, the sales were greater than for any month in the last five years. Every household in the land should be supplied with a good clothes wringer, and the Universal gives universal satisfaction.

See Pages 393 to 396.

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The American Pomological Society.

It was a happy thought that fixed the place of the quarter-centennial meeting of the Society at the home of its president and founder. Let us begin by stating that the meeting was held at Boston, upon the invitation of the Massachusetts Horticultural Society. Those who know that Society need not be told that the arrangements made for the reception of the National Association were most ample and thorough. Not only the Horticultural Society, but all Boston and its vicinity seemed interested in the matter, and intent that the "silver wedding" of the great National Association should be duly honored. The magnificent granite temple of the Massachusetts Society was devoted solely to the exhibition of fruits. Here were state, county, society, and individual collections, and such an outpouring as to absolutely bewilder one. As we write before any reports are made up we can not give a numerical account of the collections. Suffice it to say that the fruit from Kansas and Nebraska attracts great attention from its perfection, that California sends oranges, lemons, grapes, and olives, Louisiana sends a remarkable collection of oranges and other tropical fruits, and that on the other hand Canada comes with the beautiful products of her orchards. The floral exhibition of the Massachusetts Society is held at Music Hall, a place well known as the home of the big organ and the bronze Beethoven. It can hardly be called a floral exhibition, as foliage so largely predominates. Here the hall is converted into a tropical garden, where palms of various kinds, tree-ferns, and other plants of striking foliage make up a bewildering mass of varied verdure. We write too hurriedly to specify the noticeable specimens. Not only was the Society welcomed officially by the mayor of Boston, but private gentlemen have opened their houses and grounds to the members of the Society. One morning Mr. Wm. Gray, Jr., gave some two hundred a breakfast at his charming place at Dorchester, and Mr. Inniswell threw open the gates of Wellesley to the members, who wisely devoted some hours to the inspection of the finest place in America. In starting upon its second quarter-century the Society has taken some wise steps and has cleared a great deal of "dead wood" out of its path. After a lively debate it was unanimously decided that the Society should offer no money premiums, and that the "Wilder medal" only should be given for meritorious horticultural objects. Then again, the exhibition of fruits for the catalogue was relegated to the State committee, and the former promiscuous making up of the catalogue no longer continues. We are obliged to close our account of this, in some respect the most important of all the meetings of the Pomological Society, before the adjournment. The spirit and feeling on all sides are most satisfactory, and we may say that the Society has taken a new lease of life, and that its second quarter-century begins full of promise and hope. The meeting for 1875 will be held at Chicago, and there will probably be another meeting at the Centennial Exhibition at Philadelphia in 1876. Of special features of this most successful gathering we may have occasion to speak hereafter.

P. S.—Since the above was in type, we are able to add that the banquet given on Friday evening at Music Hall was a grand affair and a fitting finale to the exercises. President Strong, after his speech of welcome, resigned the chair to President Wilder, who was in his most happy mood, and presided with a grace and dignity that we have not seen equaled. We heard nothing but expressions of universal satisfaction at the whole affair.

Milk to a Pound of Cheese.—"S. H. H." The results of the working of cheese-factories show that it takes somewhat less than ten pounds of milk to make a pound of cheese.

Bee Notes.—Agassiz Criticised.

BY M. QUINCY.

A lecture upon bees by Prof. Agassiz has been reported in some of the papers, in which he tells a good deal that is valuable and what I know to be true, some things that may be true, though I have never been able to verify them, and some things, if he is reported correctly, which I know to be false. This I very much regret. I would not willingly shake the confidence in so eminent a man, but allegiance to the truth certainly ought to stand before allegiance to men.

I will notice a few points in the report of the lecture as given in the N. Y. Tribune, Scientific American, Rural New Yorker, and other papers. Agassiz is reported as saying: "When a swarm breaks off from an old community to form a new colony, the division is generally due to the appearance of a new queen." Now this is not true. The new queen has not appeared nor will she appear according to the general rule for eight or nine days

to come. The Professor seems to have confounded the first with second or third swarms from a hive in this explanation. It is the appearance of rival queens that causes these after-swarms.

"REMARKABLE FACTS CONCERNING THE QUEEN BEE."

Agassiz says: "The queen bee usually quite contented with her lot, watching over her progeny, active, and patient in the care of her eggs, becomes furious if a rival arises in the hive." "Usually contented with her lot," appears to be correct, but being "active and patient in the care of her eggs and watching over her progeny," is all imagination. The truth of the matter is, she takes no more care of her eggs or progeny than the flesh-fly or mosquito. I feel safe in saying this, for I have observed hundreds or thousands of queens and never yet saw one thus engaged. All that the queen does is to deposit her eggs in the cells, some do not even do that properly, a half dozen eggs being sometimes found in one cell. The superfluous eggs must be removed by the workers. Any one can prove the truth of this by a little attention. It is nearly true that if a rival arises in the hive the old queen will sometimes "fight to the death." But when the Professor explains how the rival appears, he errs again. "So well is this understood in the hive that the workers take care to prevent such conflicts by holding back the new queen just ready to be hatched from her royal cell until the bees have swarmed." This is the mother queen, the old one, that is spoken of now. But the fact is that when she issues with a swarm *there is no such thing as a new queen just ready to be hatched* nor will there be short of a week, unless bad weather has kept her back. Very many swarms and old queens come out—especially with the Italians—when the young queen has not yet emerged from the egg, and no young queen in such case will hatch out short of twelve days. Nature has provided that they should leave when the young queen has progressed to the larva state and has been sealed over in her cell. She is later a week longer in changing from the larva to the chrysalis and maturing to a perfect queen, before which time she can not fight. Now the instinct that teaches the old queen to leave with the first swarm before there is any possibility of a conflict is quite as wonderful to me as anything the Professor relates.

He continues: "At such a time," that is just before the issue of a first swarm, "the workers will stand by the cell out of which a queen is to be born, ascertain how far her transformation is completed, and, should there be a disposition of the young queen shortly to creep out, they increase the deposit of wax upon the lid which shuts the cell, thus preventing the egress of the royal prisoner. If she tries to break through or attempts to gnaw her way out, the workers crowd around the opening or accumulate such an amount of wax upon it as to frustrate all her efforts. When the old queen has peacefully departed the new one is set free."

Now we have seen or can see if we observe properly that no such things happen with the old queen. We have hives in which we can examine all parts, can see every bee, and examine the condition of every cell at any time. With such hives nothing is easier than to show Agassiz to be in error. Had his remarks been applied to young queens they would have been nearer the truth, but then would not have hit it exactly. The way bees proceed in swarming is briefly this. The old queen departs with the swarm as soon as the first royal cells are ready and sealed, usually leaving some unsealed. The remaining workers go on precisely as before, nurse the young, seal up the unfinished cells of workers as well as the royal cells. The queen that first matures bites her way out before she has strength to fly, and makes it her business to go about and sting her royal sisters to death. This is exemplified when a hive throws off but one swarm in a season. But if a second swarm is to issue the case is different, and then is when the second and other maturing queens are kept back, not by depositing wax upon the lid, but by simply holding it shut; a little hinge on one side is all that holds and it can be pushed open in a second when the bees do not hold it. The first hatched queen is not allowed to destroy the others, and seems to understand that they are deadly rivals and have strength to fight a decided battle. She seems greatly agitated, running about and stopping a moment occasionally to give a few sharp shrill sounds. Those in the cells repeat the notes in a hoarse key. I have taken out the combs and held a single one before me with the bees on it, and have seen the queen at the time of making the notes. I have examined the cells just described containing the queens, and seen the bees holding the door shut. I have cut off such cells, held the door myself, heard the piping noise in my hand, have laid the cell down and saw her majesty push open the door to freedom the next instant. This piping may always be heard a day or two before an after swarm or swarm with young queens. If the weather and all is favorable, the first hatched queen seeming to understand the consequence if she remains, leaves with as many bees as choose to follow, and avoids further trouble. This occurs usually in just nine days after the old queen issued. Another queen is liberated which proceeds like the one first hatched, and if a third swarm

issues it is under similar circumstances and only about two days after. When the bees are through swarming the queen which is at liberty destroys all her rivals and reigns alone.

Now, a few words about the construction of cells. The Professor says: "The swarm having alighted near a favorable spot, a single working bee—one out of twenty thousand, perhaps—starts from the crowd and lays the first piece of wax, which is the foundation of a new comb."—This is not quite true. If he had left out "starts from the crowd," and simply said "lays the first piece of wax," it would have been nearer the truth. The first pieces laid are not always foundations of comb. The fact is, the first bee remains in the crowd when putting down the first lump, and is not in sight. Lumps of wax are stuck on the branch of a tree before the swarm has been there thirty minutes. A few hours after being hived they will have scores of these lumps, varying in size from a pin's head to a small pea. These disappear after the combs are commenced.

The lecturer continues: "The first bee having made the first cell, a second bee comes and stands opposite her, head to head; then another at her side, so that the two stand side by side; and the rest follow in definite position, each building a cell around itself, until gradually a good-sized comb is built."—I am much surprised at this. We have only to examine the process of comb building by taking out the bees occasionally, and we shall find no first cell at all until irregular lumps of wax joined together extend an inch or more downward. How a bee can "build a cell around itself" is a curious speculation. If the bee had a thin sheet of wax just the right size rolled out like paper, and could wrap it around its body, it might possibly be conceived. But comb is built in no such way, and the great naturalist is nowhere more grossly in error than here. The bee uses neither hands nor feet, but mandibles, and these it uses very much as a mason does a trowel. We can see this if we look—not, indeed, by trying to see into the dense mass of bees just hived—but by observing them through glass, when they have combs projecting outside the cluster, generally in glass surplus boxes best. We can see them detach a thin scale of pure white wax from the underside of the abdomen, one-sixteenth of an inch in diameter, then seize it with the mandibles and chew or work it into a sort of lump and apply it to the center of the comb or end of the cells. This lump is ten times the thickness of the partition wall of ordinary cells when finished. Warmth to make it pliable seems necessary. With their forelegs they then remove the superfluous wax until just a thin plate at the center is left. The bottom of the cell is finished first, but wax is applied to lengthen the cell wall in the same way. It is polished with their teeth as they proceed. When the cell is one-fourth of an inch deep—if the yield of honey is abundant—it is nearly filled with honey, or receives an egg. The lengthening of the cell continues. If for a bee, one-sixteenth over a half-inch in length is made. If for honey only, cells several inches long are sometimes constructed. One cell is not made first, but all advance together, and all are filled as they proceed, only leaving room to smooth and polish the end. Of course, the impossibility of the bee being inside a cell nearly full of honey to build anything around itself is apparent.

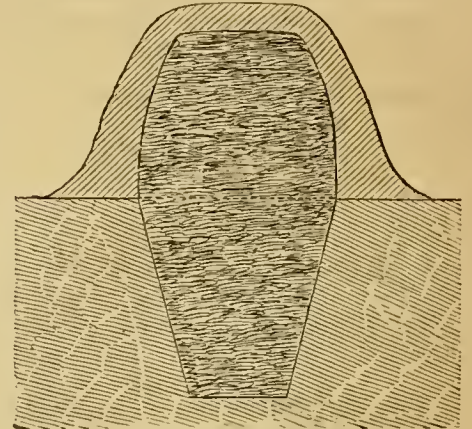
More might be said. But surely this is enough to show the folly of taking any man, however great, as an infallible authority. I can only hope that the Agassiz teaching on other topics may be free from the mistakes which he certainly makes in this lecture on bees.

Sour-Fodder Making.

The curing of various kinds of green fodder into sour hay is perhaps in the United States a not commonly practiced manipulation, especially the souring of green corn, which should be practiced with more effect on the farms of the United States of America. The making of dry hay of green corn is an injurious manner of curing it. Although the writer of this is not acquainted with American farming except by reading of the *American Agriculturist*, nevertheless I communicate a method of preservation of juicy fodder peculiarly important for corn-producing America.

The corn is sown broadcast, or drilled in rows 9 to 18 inches apart, 2 mezens to 1 Austrian tock (or about 3.3 hectolitre to 1 hectare). [This is nearly 3½ bushels to the acre.—Ed.] The cultivation remains the same; the field must be kept free from weeds. At blossom

time the corn is mown, loaded into wagons, and hauled in. The home-brought corn is put in large ditches (German Grube, Miethe), 10 or 20 rods long, and is here pressed in by a few men walking on the green corn. The accompanying engraving will explain the whole. The ditch is 12 feet deep, 12 feet wide at the top, and 6 feet at the bottom. The length will need to be sufficient to contain the fodder to be preserved. The ditch must be dug in dry ground. When the ditch is filled the green corn is built like a stack upwards about 10 feet over the level of the ground, as shown in the engraving. The finished stack is then covered with earth about



DITCH FOR THE CORN.

two feet thick on every side. It is best to cover the top of the stack at first, because the weight of the earth pressing down the green corn, as much earth is not needed for covering as is the case when the sides are covered at first.

This sour-hay making enables us to store a large quantity of juicy fodder for the winter, and if well covered with earth it may be stored for a few years without any injury. The most important of all is, the beasts being once acquainted with this sour hay, like it very much. With us (in Hungary) the sour hay is cut and mixed with corn-meal, or some other ground grain, and given to the cattle; but the sour hay may be fed uncut also.

In sections where stones and bricks are to be obtained cheaply the sides of the ditch may be walled, but it is not necessary.

I should be very glad if these lines would serve to encourage the sour-hay making of corn by the American farmers. G. C.

ALBRECHTSFELD, HUNGARY.

Joseph Arch.

It is not often that the passage of a private individual from England to America is of any especial interest to others than the person himself and his immediate family. In the case of Joseph Arch, his leaving England and his arrival in America are of importance to both countries. The saying that "he left his country for his country's good" may be applied to Mr. Arch in other than the ironical sense in which it is usually employed. Within a few years Mr. Arch has risen to be the head of an important movement among English laborers. From all accounts he is thoroughly in earnest in his desire to benefit the English laborer, and takes a large and common-sense view of the matter. He finds that the present depressed condition of the farm laborer, his low wages, and consequent poor living and ignorance, are due to overstocking the market. He regards the attempt to benefit the laborer as hopeless so long as labor is so abundant that the employer can

fix his own price. He proposes emigration upon a large scale as a means of benefiting those who go and those who remain. With this plan in view Mr. Arch comes to this country upon a tour of observation. He proposes to examine the condition of the laborer here, and to ascertain what are the immediate as well as ultimate prospects for the immigrant; and when he returns and makes his report such action as may seem advisable will be taken. This cautious and business-like manner of proceeding is certainly highly commendable, and we hope that Mr. Arch will have abundant opportunity for observation. The impression has obtained that Mr. Arch comes over at once with a large number of laborers, and we have been written to with reference to securing a number of them. It will be seen from what we have said that this is a mistaken idea, as Mr. Arch's visit is entirely preliminary, and all future action will be founded upon the report he may make after his return.

Ogden Farm Papers.—No. 44.

"L'homme propose, et Dieu dispose," which, being freely interpreted, may be read: "Don't count your chickens before they are hatched." Was there ever before such an unreliable sitting hen as this season has been? Or was ever such havoc played with the eggs of a farmer's hopes? Ours were pretty well added by the middle of July. One very essential element of success in farming had been persistently withheld from us. Seed, labor, soil, and manure, valuable though they are as factors in the problem of vegetable growth, are of little avail unless the universal solvent comes daily to lead them to their result, and not a solvent did we get from the 9th of May until the 17th of July, save a couple of insignificant showers, nor did we have any perceptible dew for over a month of this time. The weather remained cool—too cool for much growth—until the winds had dried the ground to below the depth of our four-foot drains, and then the sun took its innings, and shriveled and withered every young seedling the chill had left. Corn-fodder, planted with four bushels of seed and ten cords of heavy cow manure per acre, began its yellow existence late in May, and struggled through the various prismatic hues (all save the green), until we almost despaired of saving it at all; but for once, "theory" got the upper-hand and was vindicated. The drier the day, the more persistently did the horse-hoe run. The ground between the rows became like an ash-heap, and, doubtless, its frequent exposure robbed it of much of its manure, but the constant stirring kept up a constant renewal of fresh air, and the air of a hot day is laden with moisture, which the shaded lower soil condenses on its cool particles. In this way we kept our crop alive, and encouraged its roots to continue their effort to get down away from the parching heat. At last it began to smile with the consciousness of long-delayed success, and a daily deepening glow of hopeful green covered the field. Ten acres of corn-fodder we were sure to have, but the first cutting must be delayed more than a month beyond the usual time. Our purchased field of clover did tolerably well in its first cutting, and then sunk into a state of final despair and lay idle until the rains came. By hook and by crook we kept the cows supplied with cut feed or with pasture, and prevented them from drying off, but they were about the only thing that did not dry off.

Among our make-shifts was a poor stand of rye, too thin to pay for cutting, which served for a day's bite now and then, and which proved so good a reliance as to determine me, more than ever, never to omit it from the yearly planting. Nearly 40 acres of our 60 (of the farm proper) are in grass, and we had calculated on 100 tons of hay at the first cutting. We counted without our host, and are only too glad to have 60 tons snugly housed. Probably quite one half of this is due to the extra cultivation and proper manuring of our former corn-fodder fields, and a good part of the remainder to top-dressing with stable manure. The drouth has prevented the "phosphatic blood guano" from having any sensible effect.

I have made frequent allusion to one corner of the farm which, a few years ago, was too deeply plowed. This land is now in grass. On a portion of it we have made several vain attempts to raise crops of roots, and have expended much manure in the effort. Here the grass in April had a somewhat promising look; the rest of the tract (about three acres) was a capital illustration of abject poverty. A close examination discovered some rudimentary grass and clover, but nothing that suggested a crop. I had read so much about top-dressing that it was determined to try it on this apparently forlorn hope, and the land was well covered before the heavy rains that fell early in May. The result was almost magical; while that portion which had looked so promising as to seem not to need manure did not yield 1,000 pounds per acre of poor hay, ox-eye daisy, and red sorrel, this poorer part, solely as an effect of the top-dressing, produced fully 4,000 pounds per acre of very fair hay. One swallow don't make a summer, but the evidence of this field in favor of the surface application of coarse manure is very strong and worthy of remembrance.

Taking the farm as a whole, even the result we have secured in spite of the drouth, is an evidence of the value of a well-underdrained heavy soil on a clay subsoil. In my market garden the effect of the season has been simply disastrous; celery sown in April had barely come up in July, when the plants were wanted for setting. An acre of cabbages which should have been all sold in the latter part of June, and which, being planted on a heavy clover sod and manured with nearly \$200 worth of stable dung, fish guano, and night soil, should have brought \$1,000 return at ordinary prices, only began to head after the middle of July, and will do well if they bring \$400 in a very high market. Lettuce and spinach came up and ran at once to seed. Potatoes dried off when the tubers were of the size of hen's eggs, and, generally, the season's profits of this troublesome department have gone "to the bow-wows," leading one to a conviction of the truth of the saying that "nothing is certain in agriculture but disappointment;" however, we do manage in some way to get along, and the failures of this year suggest means for avoiding their repetition in future years. When luck is bad and times are dull, no one is so well able to weather the storm as a farmer who has a good roof over his head, a good heart under his jacket, a good wife at his side, and a good soil that is yearly growing better under good management.

A correspondent in the city, who amuses his

leisure hours with the management of a farm, asks: "Is there any advantage in our country in keeping up old pasture fields as in the old country? There they are not tempted to turn up sod for Indian corn as we are. Is this the reason for their partiality for old pasture fields, and for their rarity with us? I have a beautiful six-acre field without a stone in it, with a turf like a lawn, on which I have kept a few sheep and cattle for years, and which I intended to keep for permanent pasture, but my farmer is always urging me to let him put it in corn; 'it would give me such a beautiful crop,' says he. Don't put yourself to the trouble of answering my probably absurd queries, but if they are worth the notice, perhaps you may revert to the subject in the good old *Agriculturist*."

Farmers in the old country probably have as much temptation to plow up old pastures as we have, and with the somewhat uncertain tenure of tenants-at-will, they doubtless need the restraint of the landlord's interest to prevent their doing so. We are usually landlord and tenant rolled into one, and our hope of immediate profit should always be tempered by our forethought as permanent owners. I have but one word of advice for any one who proposes to break up good grass land for the sake of growing a crop of corn, that is—"Don't." In the first place, to a man who needs grass, whether for hay or for pasture, nothing is so valuable as a well-sodded field. The only reason for plowing it should be to seed it down again, and this may nearly or quite always be obviated by other means. The harrow, fresh seed, and, above all, top-dressing and kind treatment in the way of a good blanket of fall growth to carry it through the winter, will renovate and perpetuate a sod on any land that is fit for grass at all. If you have such a field as you describe, cherish it as the apple of your eye. It may take years and years to restore it if you once break it up.

Corn! Indian corn is the *Ignis fatuus* of Eastern agriculture; a relic of the days when our ancestors had to grow it at home or go without it, a habit of the Yankee farmer, a rut of the old fogysm which hates to adopt new ways and to relinquish old ones. I modestly venture the opinion that not one bushel of corn has been grown within five years anywhere in New England, New Jersey, or Eastern New York that has not cost more than it came to, that has not been grown at a positive loss; and I think it is time for men who call themselves "practical" to cast up the account and realize the fact for themselves. On one side we have the market value of a bushel of Western corn and the added extra value of our better article; call it if you please \$1. Nobody pretends that it pays to grow less than 50 bushels per acre, and for all the increase beyond that you must increase the items of labor and manure in proportion, so that it will not pay to grow 100 bushels. Remember that corn is an enormous feeder, and that a full crop can be grown only with an extravagant outlay for manure, and that even the moderate crop which can be grown on rich land without much manure takes from the ground material which would bring much more money if allowed to produce grass. I have never seen a statement of the cost of producing a crop of corn for a premium in which the loss in fertility was estimated at anything like its fair value for the growth of grass. Then take the question of labor. Labor is the mill-stone that threatens to

pull us under; we can't do this and we can't do that because of the labor it would take and the high wages we must pay; yet we insist on growing a crop that costs more for labor than any other we cultivate except potatoes, and labor that must be applied when we ought to be cutting our early

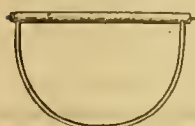


Fig. 1.—HOLDER.

hay in June, or attending to our root crops in the fall. Turn it which way we will, our corn-growing is a mistake, and a grave one. It seduces us into breaking up grass land we might better keep good by top-dressing; it consumes labor that we need at the same season for more important work, and it eats into our manure heaps like the dry rot, instead of increasing their value as the purchase of Western corn surely would do. "Corn, never—corn fodder, always," say I.

In one of the letters, of which I get many, I find the following sentiment—the question discussed being the tendency of American farmers who employ foremen to select Irishmen and Germans—"I have no antipathy against any class of persons. I believe an Irishman or an African is just as good as myself if he behave as well. Nevertheless, I will never work under an Irishman or a German (unless compelled to). Perhaps this may be called pride, but I call it 'Americanism.'" *Mirabile dictu!* Americanism! Well, if the rose smells sweeter so, pray give it this name. It needs all the fragrance the most cunning nomenclature can lend it. Call it what you like, my friend, but the emotion that actuates you is not even pride (which is a worthy emotion, but snobbishness of rather a low order. I am an American, too, and with as much pride of race, perhaps; but I am, for my part, content to do my work in this world under such leaders as my circumstances give me. If am better than the foreigner, I shall be able to convince my employer that it will be for his interest to make me his foreman; if I am not—why, may the best man win! Let us not keep him down because he was born on another part of the footstool. Americanism



Fig. 2.—HOLDER IN USE.

that is worthy of the name upholds its own rights always, but does not contain people of other nationalities, whom we have freely invited to our land, and to whom we owe not only very much of the development of our national wealth, but—not to put too fine a point on it—our own ancestry. The sort of "Americanism" shown by the writer in question is just now fighting in its last ditch in the Lava Beds. He closes with the following P. S.: "I

am anxious you should not understand me as making a personal thrust at yourself, for I am only speaking of an evil, as I and many others understand it, and a general one. If I were not a careful reader of the Ogden Farm Papers this would not have been noticed."

To which I simply say that, in my capacity as a writer for the *Agriculturist* I have no person, and should be incapable of taking offense even were it intended, which in this case, of course, it was not.

Bag-Holder and Lifter.

An illustration is here given of a very handy bag-holder by which the mouth of a grain bag is held open while it is filled from a shovel or scoop. The holder is made of hickory, ash, or white oak, and consists of one straight piece about 14 inches long and half an inch square, pointed and furnished at the ends with short, sharp steel spikes less than a quarter of an inch long. At each end, about half an inch from the extremities, quarter-inch holes are bored through, and a half-hoop three-eighths of an



Fig. 4.—LIFTER IN USE.

inch thick is tenoned into the holes and wedged so that they are firmly fixed. The holder is shown at figure 1, and at figure 2 is shown the method of using it. The mouth of the bag is drawn through the half-hoop, and is turned over towards the outside, the short steel spikes holding it from slipping off. The mouth of the bag is thus held open while it is being filled. By hanging two cords from the beam or floor overhead with hooks attached to them the bag may be held suspended at a proper height above the floor for one person alone to fill it. This will be found very convenient both for farmers during thrashing time and when much feed is being handled as in the winter season, and also for country millers who handle a good deal of grain without much mechanical help. Such persons will find the little machine shown at fig. 3 also a very valuable help and a great saving of the muscles of the back. Few people like lifting bags of grain or hauling them about for the love of the thing. With this machine bags may be wheeled about on a barn or mill floor and emptied into a grain or feed-bin or into another bag with great saving of labor and strength. Its mechanism is seen at fig. 4. It is a frame mounted on wheels so arranged that the direction of its motion may be changed with ease. A sloping board or bag-rest is pivoted on to the top of the frame so that it may swing within the upright standards. A foot-board or seat is made at the bottom, on which the full bag is placed, and hand-holes are cut

in the sides by which the bag is elevated. Small hooks are driven into sloping board to hold the bag from sliding. When the bag is to be emptied it is raised from the ground and the contents are shot into the bin. If another bag is to be filled with the contents it is hung upon the upper end of the board with its mouth around the guides, and is held fast by the small hooks at the side. The grain or meal or whatever it may be is thus transferred from one bag to another instantly without difficulty.

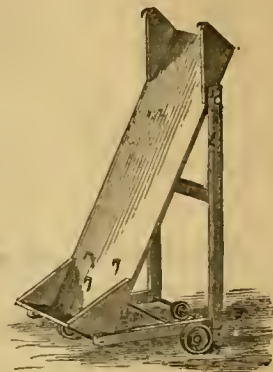


Fig. 3.—BAG-LIFTER.

Stacking with the Horse-Fork.

"A Correspondent" asks for a method of using the horse-fork in stacking straw or hay. The usual method of doing this is shown in the accompanying engraving. A pole, at the lower end of which is a stout pointed iron spike long enough to take firm hold upon the ground, is raised and stayed with guy ropes. This pole should be of such a length as may be adapted to the height of the stack; one twenty feet long will be most generally useful. At the top of the pole another iron pin is inserted, over which a round plate revolves by means of a hole in the center. Several other holes are made at the edge of the plate to which the stay ropes are attached. A short boom is suspended so that it will easily revolve around the pole, and at the end of this the hoisting pulley is hung. The hoisting rope passes through a pulley-block hung at the inner end of the boom, and through another at the bottom of the pole, and thence is hooked to the clevis of the whiffletree. The method of using this contrivance speaks for itself. The fork as it is loaded is hoisted, the man who builds the stack guides the fork to



STACKING WITH HORSE-FORK.

where the load is needed, and then by a signal instructs the man or boy on the wagon to trip it. This is done by means of a cord held in this person's hand, by which when the fork is tripped it is brought back to the wagon and loaded again instantly. The driver of the horse, of course, watches closely the moment for the requisite movements, and should act, if any way smart, without waiting for directions.

Hunting Deer.

Now that the harvest has been gathered, and the wheat and rye sown, recreation may justly be mingled with labor. While there are few occasions upon which the farmer or his boys can say there is no work to be done to-day, yet at this season there are many on which he can say, "Let us go a-hunting"; and in localities where deer abound it is a very proper and profitable thing to do. Few farmers possess hounds for the purpose of hunting deer, nor do we encourage them to do so. That sort of hunting is hardly to be called sport, and is a barbarity which is to be reprehended. Still hunting, as it is called, or deer-stalking, is preferable in every way. But amongst the woods the deer-lick furnishes the most exciting sport, mingled with the least labor. On the open prairie hunting a deer is hard work; in the woods it is easier while equally exciting. The discovery of the trail, the finding of the decayed stump to which the deer has been in the habit of resorting, the preparation of the lick and the screen behind which the hunter keeps guard, and finally the silent watches during which the ear is on the alert to catch the snap of the betraying twig or the gentle footfall of the approaching game—all furnish occasions for the exercise of judgment, sagacity, and patience. When the reward is gained, and the moment of triumph comes in which the hunter bears home his booty, he feels better paid for his pains than by any equally valuable thing gained in any other way. Deer being very fond of salt will make a practice of periodically visiting a place where they can procure it. The making of a salt-lick is a very simple matter. One often finds in the woods partly rotten stumps of fallen trees which have been gnawed and licked by deer for some purposes satisfactory to themselves at least. If such a stump is notched with the axe, or a hole is bored into it a few inches deep, and salt placed

therein, and the deer once gets a taste of it, it will return so often that a well-worn path will soon be made. Other deer will follow the track, and a new lick, after a lapse of two or three weeks, will be frequented by all the deer in the neighborhood. A screen of brush is made at a

regions and in Canada deer become a positive nuisance. They have been known to come in droves so holdly as to totally destroy crops of grain and turnips. It is only recently that a correspondent wrote despairingly to ask how he could prevent their depredations. Shooting

he wrote was of no account. They came in the night when he could not see them and when he had need for rest. Under such circumstances we have seen them trapped. A stout sapling is bent down and fastened by a rope to a trigger fixed in the root of a tree or stump. A slip-noose is attached to this rope, and a piece of board balanced over a short stick forms a trap by which the trigger is loosened. The instant the deer touches the trap the trigger falls, loosens the



DEER AT A SALT-LICK.

distance of 100 yards or so in which the hunter may hide and take a deliberate shot. As soon as they have become familiar with all the surroundings the deer will approach the lick without any caution, and very probably the first intimation of their presence to the hunter will be the sudden appearance of one or perhaps more as though they had sprung out of the ground. Then it is necessary to be very careful. The least sound of a motion may cause the loss

rope, the sapling rebounds, and the noose entangles the deer by a leg or the horns and holds him securely. Some salt in a notch in the stump or on the trap furnishes the attraction, or the trap may be placed at a part or the fence over which the deer are in the habit of jumping. Our second engraving shows this contrivance and the manner in which it works.

WHEAT-GROWING IN MINNESOTA.—Daniel Currie, of Fillmore County, Minnesota, writes: "Our soil is a rich, black loam, excellent for wheat and oats. When new it will produce from 25 to 35 bushels of fine wheat per acre, but a great deal of the land is beginning to fail. We consider that last year was a good season for wheat; but still much of the land did not produce over 15 to 17 bushels to the acre. This was land that has been cropped steadily to wheat for ten or twelve



TRAPPING THE DEER.

of the game. Therefore everything should be prepared beforehand to take advantage of this moment; and, as is shown in the accompanying engraving, a convenient prostrate log may serve very well both as a rest for the rifle and a hiding-place for the hunter.

In some parts of the North-western wooded

years. On land cropped not over six times the yield last year was not less than 20 bushels per acre. The best farmers are beginning to seed down largely with clover and timothy and to raise more stock. There has been very little blooded stock introduced here yet. Wheat yields quicker returns and

pays much better than stock so long as the land is new. But the time is come when we will have to pay more attention to stock-raising. Notwithstanding our severe winters stock does remarkably well. Although cold, the winter weather is remarkably steady and dry. Barn-yard manure applied directly to wheat does not work well here; it produces too much straw. The only crop that will do on manured land is corn. Wheat does not do well after corn, manured or not. Would not the better way be to apply our barn-yard manure to the grass land and afterwards break up for wheat?"—We think so. But we have had comparatively little experience in raising *spring* wheat. More clover and more stock is the true method of keeping up the fertility of the soil. If the manure was richer, as it would be if more clover and grain were fed to the animals, and if it was well rotted, it would be less likely to produce too much straw. In the meantime it can not be a bad practice to spread the barn-yard manure on grass land. This will do much to get rid of the excessive amount of carbonaceous matter which poor, strawy manure contains, and the following grain crop will be less liable to lodge.

Walks and Talks on the Farm.—No. 118.

The Deacon had a splendid crop of oats this year. He plowed the land early in the spring, but afterwards the weather was so wet that he could not sow the oats. A severe drouth then set in, and as soon as the field was dry he plowed the land again and sowed the oats. They grew rapidly from the start and continued to grow. They stood up and filled well. He cut them on the 21st of August. This was two weeks later than I cut my oats which were sown early.

As a rule, it is better to sow oats as early in the spring as the land can be got into good condition. More depends on the condition of the land and on the season than on the time of sowing. That second plowing which the Deacon gave his land had something to do with his big crop.

My oats and peas turned out well. We call the piece 12½ acres, but I think it is nearer 13 acres. We thrashed out 805 bushels, and I think left at least 30 bushels on the ground and in rakings that we did not thrash. I have so many pigs that it is not worth while being very particular about getting every bushel of grain into the granary. The pigs are good scavengers. The oats and peas weighed 43 lbs. per bushel. Reckoned as oats, at 32 lbs. per bushel, the crop represents 1,081 bushels, or 84 bushels per acre. I call that an encouraging crop for a run-down farm.

Our hay crop is exceedingly light, and this crop of oats and peas is all that saves me from being obliged to sell more or less stock before winter sets in. As it is I think I shall have fodder enough to carry me through. This oat and pea straw is nearly if not quite as good fodder as a carelessly harvested crop of clover or timothy hay.

"But how do you harvest the oats and peas?" asks a practical friend; "are they not difficult to cut and cure and thrash?"

The thrashers have a kind of notion that peas will hurt them or their machine—one or both—I do not exactly know how or why. I have learned to pay very little attention to

notions of this kind. All I know is that I have no trouble in getting the crop thrashed. We had a ten-horse machine, and it seemed to be not a difficult matter to thrash two bushels a minute. One bushel, while I stood by, watch in hand, came through in 23 seconds. Where the peas and oats were somewhat green it was slower work, and two or three times, when they were quite green, they "wound round the cylinder," and delayed matters a little. But this amounts to nothing. The crop is as easily thrashed as any other.

In regard to cutting the crop I may say that if done with the scythe the work is hard, slow, and expensive. My crop, owing to heavy rains, was in many places badly laid—in fact beat into the ground. Still, by cutting only in one direction, we had little or no trouble in cutting the crop with a Johnston reaper. This machine has a movable cutter bar, and the "fingers" can be depressed so low that the points of them will just scratch the ground and rake up the lodged grain. This part of the work if the ground is smooth the machine will do *far better* than it can be done with a scythe—at any rate, far better than it was done by the men who "cut round" the field before the reaper. The only difficulty we had was in cutting a part of the field on a reclaimed swamp, where the crop was exceedingly heavy and the oats and peas quite green and tangled every way. It seemed asking too much to expect that any machine could be made that would cut it. Yet, so far as the mere cutting was concerned, this machine did the work with perfect ease. The only trouble we had, and it was very slight, was in dividing these green and lodged peas from the uncut crop. They gathered in a bunch on the point of the divider, and the rakes were not strong enough to tear them off. At any rate I was afraid to try. We had to pull them off by hand. This, however, was a small matter, and I am sure that this machine will cut a heavy crop of peas and oats much better than I have ever had them cut with scythes.

As to curing, all that we did or needed to do was to turn them once or twice, throw them into windrows, with just space enough for a wagon to go between. We put on two pitchforks, one on each side of the wagon, and let them pitch out of the windrows without cocking. There is no nicer crop to harvest. And I may add that for the labor involved it pays as well as any ordinary farm crop. In fact, taking the high quality of the straw into consideration, I think there are few crops that pay so well, provided your land is rich enough to produce a large growth.

I have a dozen or more letters from farmers in different sections of the country asking a great many questions. I am always glad to hear from any one interested in agricultural matters, but I am sorry to say that I am rather a tardy correspondent, and my space in the *Agriculturist* is so limited that I am obliged to give short and I fear very unsatisfactory answers.

"How would you like," writes an Iowa farmer, "to live where corn brings only ten cents a bushel?" I should not like it at all if I was obliged to *sell* the corn. But as I keep more pigs than I can raise corn enough to feed, and have to buy a good many tons of corn-meal at from \$22 to \$25 per ton, I do not think I should particularly object to live in a cheap corn-growing section. But I don't think I would sell much corn. I can not conceive it possible for pork ever to be so low that it will not pay

a very handsome profit to turn ten-cent corn into pork.

A Pennsylvania correspondent says he wishes to make his own superphosphate, and has been furnished with the following recipe: "600 lbs. bone dust; 200 lbs. oil of vitriol; 150 lbs. sulphate of soda; 10 lbs. nitrate of soda; 50 lbs. muriate of soda (common salt); 300 lbs. sulphate of lime (plaster); 7 bushels earth or sand." He "has been assured," he writes, "that this mixture will not cost over \$30 per ton." I should not like to pay \$20 per ton for such a manure.

"I am," continues this same correspondent, "the owner of a 300-acre farm that has been nearly ruined by the abominable 'two-thirds' system of leasing which is so extensively practiced in this part of the State, and I am decidedly in need of *some* means of bringing it up to a producing point more rapidly than can be done by lime, clover, and fallow. While I have great faith in this method, I am anxious to supplement it with some chemical manure." It is a great *shame* that we can not be certain of getting an artificial manure worth what we have to pay for it. Until we can there is nothing to be done but to make all the manure we can on the farm. Keep sheep, and buy bran enough to give each sheep from one to two pounds per day in addition to straw and clover hay. There is no cheaper way of getting manure. The cheapest artificial manures are guano and nitrate of soda, provided the latter can be got for \$80 or \$85 per ton.

"I intend sowing," continues the same Pennsylvania farmer, "a few acres of timothy grass this fall without winter grain. My neighbors are all laughing and shrugging their shoulders and calling me a 'Jack for my pains;' but if I can cut one ton of hay per acre next summer it will pay me better than the best wheat crop raised in this valley for the last three years." I hope you will get it; but if not let the neighbors laugh. It amuses them and does not hurt you.

"I had an old meadow of 14 acres," he continues, "that I undertook to renovate by harrowing, manuring, liming, and reseeding. The season before I did this the yield of hay from the 14 acres was 10 tons. The year after (1872) the crop was 20 tons, and this season it yielded 29 tons." That will do. This 19 tons of extra hay in two years will pay a pretty large interest on the cost of renovating.

[Walks and Talks are unusually brief this month on account of illness in the family of the author.—ED.]

A Mountain Home in Colorado.

Hill's Ranch is on Beaver Creek, one of the feeders of the South Platte, about 26 miles west of Denver, just over the first ridge of the Rocky Mountains. It is on the old turnpike from Denver to Idaho City, and before the railroad up Clear Creek Valley was built was used as a hotel for the accommodation of teamsters and travelers going to the mining districts. Hill is from Jefferson County, New York, and located here a few years ago upon what is called a *wedge*. This is a triangular piece of land left by the surveyors between one meridional line and another, after all the square sections have been located. Hill preempted 320 acres of land, and will get title as soon as the

triangle is surveyed. He sold out a year since to George C. Miller, another New Yorker, who is now in possession, for about \$8,000. Those who imagine the Rocky Mountains a scene of bare rocks and sterility would be surprised to look out upon the fertile meadows, the wooded parks, and the forest-clad hills that surround this frontier home. Mr. Miller is doing a thriving business as a farmer, and seems quite content with his lot. He has about 75 head of cattle and 13 horses upon his ranch, and milks 20 cows. Cattle are worth four cents a pound live weight, averaging in his herd about \$35 a piece. Butter sells for 50 cents a pound, and the market is near in the mining districts; beef is worth 10 to 14 cents a pound; horses at four years old are worth on an average \$150, and the market is lively. Stock-raising brings money easier than anything else, and the temptation is to neglect the tilling of the soil, though other crops pay well. Wheat is a sure crop, and the yield is from 30 to 40 bushels to the acre, worth two and a half cents a pound. Everything is sold by weight in Colorado. Oats yield from 40 to 75 bushels to the acre, weigh 42 pounds to the bushel, and are worth two and a half cents a pound. Rye and barley grow as well as wheat, but are not so generally grown. They are worth three cents a pound. The potato is as much at home here as in the Green Mountains. Everywhere the crop is luxuriant, and the tubers are of the finest quality. Mr. Miller raised last year a thousand bushels upon seven acres, and sold them for from two to six cents a pound. They keep well in this cool atmosphere all through the summer, and old potatoes are selling, August 2d, at six cents a pound. All the new potatoes in market are from California, and are of poor quality. All the cereals thrive except corn, which can only be grown for green ears and for fodder. The garden crops, peas, lettuce, beets, carrots, parsnips, onions, thrive, though they come to a late maturity. The wild grass, which makes a very sweet hay, is cut and baled and sold to travelers, and thus turned into money. The rain-fall is abundant all through the summer months, and crops mature without irrigation. There is little snow in winter, and store cattle do well without fodder. The autumns are long, dry, and pleasant, and more snow falls in April and May than during the winter. The old residents are charmed with the climate, and pronounce it the best stock-raising country in the world. The original log house is still standing, though a much larger and better frame building has been erected. A large barn is now going up for the storing of hay to supply the wants of the mining districts. The great drawback to prosperity here seems to be the high price of labor in the kitchen. The wages of servant girls are from \$10 to \$14 a week, and very difficult to procure at that. There is also complaint that the railroads have spoiled the business of freighting, and, of course, interfered with the profit of the country hotels. Money is not as abundant as it was a few years ago. There is another side to this question; it is quite certain that railroads will bring the kitchen help that is needed from the East, where this kind of labor is worth but a quarter as much. Such a paradise for servant girls can not long remain vacant. The railroads, too, are bringing summer tourists in large numbers to breathe this mountain air and to admire this charming scenery. Such a refuge from the summer heats, where there are no dog-days and the atmosphere is always delicious, cannot fail to draw increasing multitudes as it becomes

better known. The air this August morning is as crisp and bracing as the October days of the sea-board. The Colorado farmer in the mountains has an enviable lot.

A Good Cross in Sheep—Cotswolds and South-Downs.

One of the most profitable products of Eastern farms is early lambs. For a month or six weeks the demand is lively, and a farmer can sell all he can raise to the butchers at fair profits; or if he prefer it he can retail in the nearest city market for twenty to thirty cents, averaging about twenty-five cents a pound. The dressing of lambs is not a difficult process, and many farmers near good markets dress their own lambs and sheep as regularly as they do their poultry. They find it makes a difference of nearly a quarter in the amount of sales from their flocks. We had had good results from a flock of South-Down grades for two years, raising nearly all the lambs dropped, and selling them dressed during the summer for an average of about seven dollars. The butchers wanted them at four-and-a-half and five dollars, but we did not covet their greenbacks. The only fault we had to find with the South-Down grades was lack of size. They would dress from thirty to forty pounds. The flesh is savory, and to our taste better than any buffalo or deer we get in Eastern markets.

Last fall we procured a thorough-bred Cotswold buck from the flock of L. A. Chase for the purpose of securing larger lambs. He was put with the flock quite early, and all the lambs came in March. We had anticipated some trouble in the parturition of the ewes, but the large lambs were safely delivered without any unusual peril, and we only lost one of a pair of lambs several days after birth. The lambs are exceedingly thrifty, have had no disease among them, and will average at least twenty-five per cent heavier than the lambs of former years. The pelts have much longer wool, and will sell for considerable more. Of course, the receipts from lambs this year must be at least a quarter more than that of last year, without any increase in the cost of production except in the cost of the buck and in the increased amount of food consumed. As they have run in the same pasture, the increased cost is only perceptible in the hay-mow and meal-bin. All that we anticipated in the cross is fully realized. The Cotswold, we think, is not quite so hardy as the South-Down and other coarse-wooled sheep. But the cross has all the good qualities of the dam with the size of the sire. We have no doubt that it pays to buy a thorough-bred Cotswold buck for the purpose of raising lambs from common coarse-wool sheep or South-Down grades. It might pay better, perhaps, to hire the use of the ram, and if there were demand enough among our sheep-breeders for this kind of service it would be met by the Cotswold breeders, and we could have the annual letting of bucks as they have in England. Sheep husbandry would be much more profitable in Virginia and the Carolinas than in the North but for the dogs. Sheep masters there could meet the demand for early lambs in March and April in our large cities, and could get much higher prices without any additional cost of production. Lands are cheaper, the climate is mild, and everything favors the cheap production of sheep and lambs to meet the demands of this early market. We can recommend the cross under consideration as admirably

adapted to meet the wants of the market.

This cross has not been much attempted in this country on account of the scarcity of Cotswold sheep. But in England it is very common, and is thought to be one of the most profitable in the sheep-raising districts. Tom Brown of Norfolk County and Hugh Aylmer sell and let annually close upon eight hundred rams, chiefly to the farmers in the county and vicinity, who use the rams for crossing with some sort of Down ewe—South, Hampshire, Wiltshire, or what is now called Suffolk-Down, the latter a black-faced sort. It is said by these farmers, who have a sharp eye to profits, that the produce of this cross—half-bred Down-Cotswolds—are probably sheep that come earlier to maturity, make more wool and mutton, and consequently more money than any other sort the world over. They are not, however, sold generally as lambs but as yearlings, 12 to 15 months, worth from \$20 to \$23 a head. Of course, such sheep must have liberal feeding—about all the grass, turnips, and linseed-cake and meal they can consume. This extra feeding pays in the increase of wool and mutton and in the superior quality of the manure dropped by the sheep.

CONNECTICUT.

The Good Points in the Rouen Duck.

We have raised Rouen ducks for three seasons, and they are growing in favor on the farm and, judging from sales, elsewhere. They are without doubt the descendants of the Mallard, and are the result of persistent breeding for size through many generations. They are the Shorthorns of the duck family, growing with great rapidity, and attaining a larger size at maturity than most other varieties. It is not uncommon for them to weigh four pounds at two to three months old, making them very desirable to raise for the summer market at watering places, where poultry brings the highest price. At maturity they will weigh from eight to ten pounds if well fed, which is a matter of prime importance in raising Rouens. They are very superior layers, beginning quite early in the spring and not unfrequently laying in the fall. They are more careful of laying in the nest than the other varieties, and there is much less danger of losing the eggs when they have their liberty. The eggs are large and of excellent quality, and for most purposes quite as valuable as hens' eggs. They are as domestic as common dung-hill fowls, never wandering far from the yard. If they have access to a pond they come home regularly at night and are easily managed. Though a pond or running water is always desirable in raising water-fowl it is not essential for the Rouens. If they have fresh water in a trough every day it will meet all their wants, and they will thrive nicely. For the ducklings, a shallow vessel like a bake-pan, an inch or two deep, answers a good purpose. Clean, fresh water every day is of more importance than the quantity. The secret of large growth does not lie altogether in imported stock of the largest size. The large stock is exceedingly desirable, but it will soon deteriorate without full feed and constant attention. If you want Rouens of large size feed regularly and often from the time the ducklings begin to eat until they attain maturity. Coarse Indian meal or hominy scalded is good staple food, but this should be varied occasionally with other grain, grass, vegetables, and animal food. Offal from the fish or butcher's market is highly relished, and makes them thrive.

How to Build Root Houses.

Those who design to build root houses for the storage of their root crops should undertake the



Fig. 1.—SECTION OF ROOT HOUSE.

work at once. In reply to many inquiries we have prepared the following suggestions and directions for building these store houses. Such frost-proof buildings are not only serviceable as root-cellars, but if carefully built will make very desirable dairies both for winter and summer use; as what is proof against cold in winter is also proof against heat in summer. Figure 1 shows a section of the root house. Mainly, it is an excavation three or four feet deep, the earth from which is thrown up over the roof, forming a frost-proof embankment. If the earth is solid clay no lining is needed, but a piece of timber or pieces of stone may be let into the upper edge of the excavation, as shown in the figure, as a support for the rafters. Where lumber is scarce, as on the Western prairies, the covering may be of brush and coarse hay, which will serve as a support for the earth. If the roof is then covered with sod it will very soon become rain-proof; but as rain rarely falls when and where these houses are needed most, as during the winter season in the far west, this is not of very serious consequence. For the purposes of farmers further east, who enjoy greater facilities for procuring material, a good timber and plank roof well pitched or tarred would be better. A stone building as shown in figure 2 would be still more preferable where its cost would not be too great. If the stone

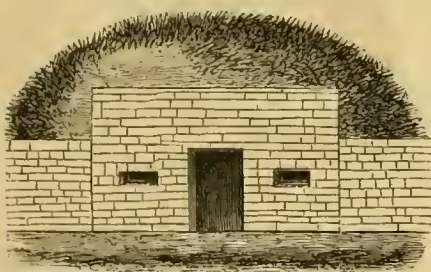


Fig. 2.—ROOT HOUSE WITH STONE FRONT.

can be gathered on the farm, such a root house with an arched roof and stone-wall front, with an excavation four feet deep, 34 feet long, and

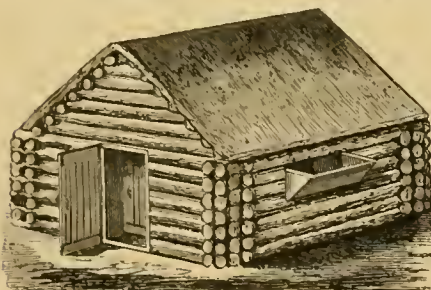


Fig. 3.—ROOT HOUSE OF LOGS.

16 feet wide, should not cost more than \$150. By a little extra outlay in cementing or waterproofing the roof and rough dressing the stone

for the front a very shapely and respectable looking building may be erected. Of course, double doors and windows are needed in all these buildings. The essential point, protection from frost and variations of temperature, are the same in all of them. For those who live in a wooded country a log or hewn timber house would be the best. Such a one is shown at fig. 3. The interior is similar to those already described. A log house is built over the excavation with double walls at least a foot apart. The space between the walls is filled with earth, and the roof, which rests upon the inner walls, is covered with at least a foot of earth also. The earth roof may be covered with a double roof of boards, laid so as to leave an air space of three or four inches between the earth and the boards, which adds to its ability to resist the penetration of frost. Tight double doors should then be added, and one or two ventilators left in the roof; these may be filled with straw in severely cold weather.

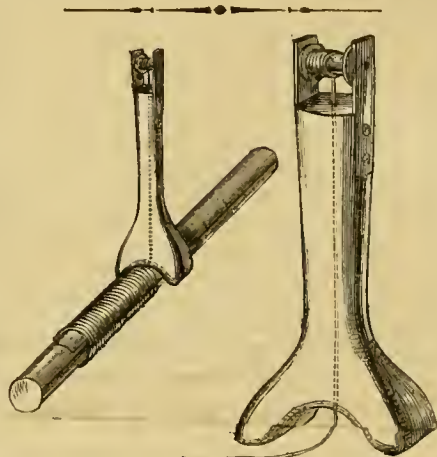


Fig. 2.—REEL IN USE. Fig. 1.—REEL.

How to Wrap with Wire.

In a former number of the *Agriculturist* (November, 1871) we referred to the uses to which a coil of wire might be put in a farmer's hands. In using wire for these various purposes we at first found some difficulty in wrapping the wire around such things as a broken shaft, tongue, or a spring. Indeed, the same trouble is experienced when we come to wrap a cord, even for temporary purposes, around anything that may happen to need such a strengthening. The loose end of the wire or cord is very much in the way of the operator, and has a fashion of becoming entangled, which when one is in a hurry, as is generally the case, leads to his feeling very strongly on the subject. Many years ago, in whiling away the tedium of a sea voyage, we observed the sailors wrapping marine or fine cord around the splices of the ropes as a preservative against chafing. They used for this purpose a small instrument which we found was exactly what was wanted to wrap wire around a broken buggy shaft on an emergency, and ever afterwards this little implement and a ball of wire found a place in our tool-box. The instrument is shown in the engraving on this page. Fig. 1 shows the form in which it is made. It may be cut out of a piece of soft wood, as pine, cedar, or basswood. A hole is bored through the center lengthwise, through which the wire or cord is passed. The wire may be wrapped on a reel which is fastened to one extremity. From the reel the wire passes through the hole in the center out at the bottom

between the jaws, in each of which there is a groove cut along which the wire passes to the outside of either of the jaws desired. Fig. 2 shows the manner of using it. The end of the wire is fastened to the thing to be wrapped. It is then drawn tight by winding up the slack on the reel. The wrapper is then passed round and round the shaft to be wrapped, and as it is passed around it the wire is coiled. Proper tension is gained by holding the reel and allowing the wire to be unwound slowly. By pressing on the reel any degree of tightness in the wrapping may be secured. When sufficient is wound, the end is made fast and the wire is cut. Many varied uses may be found on a farm or in the house for this little tool.

Auvergne Cheese.

There is a cheese made in the mountain region of Auvergne, in France, which is much esteemed, and of which the process of manufacture is peculiar.

The milk is immediately after being drawn strained into the vat and treated with rennet. The curd is not broken until it is translucent and firm, "like a well-made gooseberry-jam," but it must not be allowed to stand until the whey separates of itself. The proper point is generally reached within an hour and a quarter. The operator then takes a spatula such as is shown in figure 1. This consists of a circle of wood with a rising shaft and a triangular wing (C, B). It is placed in the vessel and rapidly whirled to and fro until the curd is completely broken and granulated. The whey is then carefully decanted with a dipper (shown in fig. 2), which is made of wood and has a handle attached to its bottom. During this part of the process the curd must be disturbed as little as possible. When it is well freed of whey it is put into a draining tub which stands on the cheese table. It now undergoes a somewhat remarkable process. The "vacher," with his sleeves rolled to the shoulders and his trousers turned up to his thighs, goes on his hands and knees and pegs away at it for at least an hour and a half (fig. 3)—the idea prevailing that the warmth of the body gives quality to the product. Let us hope that he is not only warm but washed! There is a saying in Auvergne: "He is a bad workman; he don't use his knees enough." When the curd has had this savory mauling it is put into a tub and allowed to ferment during 48 hours—being placed near the fire if the weather is cold. Under the influence of the fermentation the cheese becomes spongy. It is then carefully granulated, salted, put in the mold, and pressed. During the pressing, which lasts twenty-four hours, it is several times turned. It is then put in the cellar. Here it is carefully attended to, wiped frequently with a damp cloth, and kept until it acquires a ruddy color, which indicates ripeness. The



Fig. 1.



Fig. 2.—DIPPER.

best esteemed Anvergne cheeses are those which are made on the spring feed at home before the cattle are driven to the mountains for



Fig. 3.—WORKING THE CHEESE.

the summer. The cellars used are underground, with no opening save a door to the north.

Stacking Corn-Fodder.

Considerable care is required to stack corn-fodder in such a manner as to prevent waste. It requires not only to be put up so that it is safe from the weather and the ravages of vermin, but that a part may be taken down for use without exposing the remainder to damage. In the ordinary stack the fodder is taken from the top, and when a part is removed for use the rest of the stack is left without covering. A stack built upon the ground immediately becomes the prey of innumerable rats and mice, by which it is not only cut up and destroyed to a large extent, but what is not directly destroyed is so soiled as to become almost unfit for use. Now that the value of the corn-fodder is becoming more widely recognized, means are to



ELEVATED STACK FOR CORN-FODDER.

be taken to preserve it more effectively. In very rare cases is there room beneath the barn roof for it, and it is necessarily stacked out. As we have pointed out, the making of such stacks as can not be removed for use at one time is objectionable, as is also the plan of making a quantity of smaller stacks by which a much greater proportion is exposed to injury. A long

stack, built in sections, which will contain the whole supply, is preferable to any other plan that we have tried. It may be built along the north side of the barn-yard, or any other exposed side, and made to serve as a valuable shelter. By setting posts in the ground, as shown in the engraving, and placing beams or poles upon them with a loose flooring of rails as a foundation, the double purpose may be served. The open bottom giving free access for air will tend to ventilate the stack, and if an opening be made, either by placing a few rails fastened together in the center or by placing the bundles a few inches apart in the center, there will be no danger of the corn becoming moldy. The posts should be dressed smoothly so that vermin can not mount them, and if they do succeed in gaining a temporary occupation it will be soon terminated if a cat is allowed to range around the premises. The space beneath such a stack may be made

useful, instead of being a hiding-place for unclean beasts and for hens to lay where their eggs are lost. The stack is to be built so that the bundles of fodder do not bind lengthways, and that it may be opened at one end and taken down piece-meal, as indeed it is put up. Each day's supply may then be thrown down, and no part of the stack can be exposed long enough to become injured.

Preserving Roots in Heaps.

It is probable that the cultivation of roots would become more general if the handling of such a bulky crop could be rendered easier than it is generally found to be. As they are too tender to stand the severe frosts of our winters, roots must be carefully protected; and the protection of a crop which under good cultivation may reach from 500 to 1,000 bushels per acre is no light task if they are to be carted to a cellar for storage and removed therefrom for use. But

it is quite unnecessary that a cellar should be provided for them. As cellars are generally built beneath the dwelling-house, and are also used for the preservation of the milk and butter, and as roots give off naturally a strong odor, which is often by reason of the inevitable decomposition of some parts of them very offensive, a cellar is in every way an unfit receptacle for any large quantity. The convenience and health of the family inhabiting the dwelling above are unfavourably affected, and butter in such a place acquires a disagreeable scent and flavor. Roots should therefore never be stored in the cellar beneath the house; but in pits, which is a method very much more convenient and equally safe. The pits may be made in the field where the crop is harvested, or they may be made in a yard or field near the barn. A slightly ele-

vated spot should be chosen which will be dry at all seasons. On this the roots should be heaped in a pile about six feet wide at the bottom and four feet high, sloping to a point at the top, as shown in fig. 1. The heap may be made of any length, or the roots may be put in several heaps. We last year saw one of these pits 1,000 feet long, which contained nearly 15,000 bushels of mangels.

The roots ought not to be put up until they have dried somewhat, nor should they be cov-

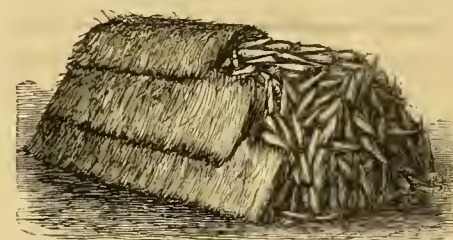


Fig. 1.—BUILDING A ROOT-HEAP.

ered with earth until there is imminent danger of frost. There is then much less danger of heating and decay than when they are covered up before they become dry. The straw covering should be a foot thick. A foot of straw and three inches of earth is better than a foot of earth and three inches of straw. The straw should be laid on straight and evenly so as to shed rain. It should be gathered closely at the top for the same purpose. The covering of earth, which should be free from stones, should be about six inches thick, and should be laid on compactly and well beaten down. At spaces of about six feet apart there should be wisps of straight straw placed upright and projecting through the earth covering. These are for ventilators, and serve to carry off the moisture and heat from the roots during the sweating or fermentation which they are sure to undergo to some extent. One of these pits may be opened at any time during the winter in moderate



Fig. 2.—COVERING HEAP WITH EARTH.

weather, and when a stock of roots sufficient to last a week have been taken out it may be closed again, taking care that it be done as quickly as possible.

Reclaiming Salt Marshes.

Great progress has been made in the last few years in reclaiming salt marshes, especially in the neighborhood of large towns and cities. All that was anticipated by the early experimenters in this work has been more than realized. They are shown to be not only the best grass lands in the world, but well adapted to almost all the crops usually grown in a market garden for the supply of a city population. The plan of an impervious core for dikes, invented by S. B. Driggs, to protect embankments from borers, has been successfully applied to the Newark marshes, and about 4,500 acres have been redeemed from the water. This land cost the company about \$105 per acre, and is

now selling from \$2,000 to \$2,500 per acre. Dwellings have been built upon them, a large portion of them is under cultivation, producing heavy crops of corn, potatoes, tobacco, garden stuff, hay, etc. Besides the smaller sales and leases, they have sold 66 acres of the interior lands not above the average in value for \$2,000 per acre, or \$132,000; and the Pennsylvania Railroad Company have erected large brick buildings upon these lands for machine shops, engine houses, and other purposes. Another sale was made upon the Hackensack River of 20 acres for \$5,000 per acre, or \$100,000; and negotiations are now in progress for the sale of 200 acres to the Pullman Car Company for \$500,000, or \$2,500 per acre. These sales show the entire feasibility of reclaiming these lands, and their great value when freed from water. Almost all our large seaport towns have large tracts of these marsh lands that are worthless or only yield crops of salt hay. They do not now pay the interest on twenty dollars an acre in any product for human use. If reclaimed, they would become much more productive in garden stuff and the upland grasses than the average dry land that needs no drainage. In the vicinity of Boston it is estimated that there are 10,000 acres of these salt marshes that might be reclaimed and brought under cultivation. In the vicinity of New Haven there are still larger tracts that could be economically reclaimed. Almost every town along the Connecticut coast between Saybrook and Greenwich has its large border of salt marshes, presenting a most inviting field for the capitalist. New Jersey has still larger tracts that can be bought cheap enough to make very large profits in reclaiming them, even if they were never to be touched by the plow and only used for the production of grass. For this crop they only need surface drainage, and the sowing of grass seed after the sea-water is shut out. We have seen enormous crops of timothy and red-top taken from such lands for years in succession, making quite as good fodder as the same grasses grown upon dry soil. These crops do well for several years without any top-dressing. It can not be expected that they will bear crops forever which are removed without some diminution of products. But, with much less outlay than is needed upon the adjacent uplands, they will yield remunerative crops, and pay the interest on two to three hundred dollars per acre. We know of salt marsh lands reclaimed seventeen years ago that are still fat and flourishing. They have never been plowed, but are kept up by pasturing in alternate years and by top-dressings of manure. A farmer who owns salt marsh can not afford to let it lie waste.

Method of Preserving Green Fodder.

A method of preserving green fodder, such as turnip-tops, beet-tops, or other succulent vegetables, has been in use for many years in Europe, by which this green fodder is kept in good condition for six or twelve months. A trench two to four feet deep is dug in a dry spot in the field, and the tops of the roots, carefully gathered when free from rain or dew, are thrown into it. They are very compactly pressed down, and when the pit is filled some straw is laid upon the fodder and the earth is heaped over the whole. In this manner this product, which is generally wasted in a great measure, is utilized. On one occasion the writer saw one of these pits opened in the spring which had been

filled and covered up the fall previous. The fodder, which was leaves of sugar-beets, was as fresh to all appearance as when gathered, and the cows to which it was fed ate it with avidity. Salt is generally sprinkled upon the fodder and aids in its preservation. It would be worth while when our root crops are being gathered to preserve the tops in this way as an experiment. It is not probable that there will be any difficulty on account of our colder climate in thus preserving for future use a very considerable amount of winter fodder. The principal requisites are to pack away the leaves when dry, to compress them as closely as possible, and to cover them so completely with earth that all access of air is prevented. It is by the exclusion of air that they are kept from decay.

KEROSENE OIL FOR HEN LICE.—Hen lice are among the greatest drawbacks to the pleasure and profit of the poultry yard; they are especially troublesome in small yards and coops where the fowls cannot have free access to green food and dry earth. We have tried various remedies, and have found kerosene oil to be a very effectual and safe one. It is applied with very little trouble; pour it from the can upon the perches where the fowls roost, and when the hens are ready to brood, saturate the inside of the box before the clean hay or straw is put in with the eggs. It is very much less trouble to apply the oil than to use a wash of tobacco, or to go through a process of white-washing once a month.

Top-Dressing Wheat.

Wheat that has been sown on unmanured ground is often top-dressed during the winter. Sometimes the manure is spread at an earlier period, but it is generally for want of the manure that the work is delayed, and it is necessary to wait for it to be made. Where this unfortunate condition does not exist it is very unwise to delay the top-dressing until the frost has taken possession of the soil. The very earliest possible moment should be seized for this work. Until the ground is permanently frozen growth is constant. Everything that can forward that growth is needed. The safety of the plant depends on its vigor and health at the outset of winter. If weak it is easily thrown out by a slight frost and destroyed, for it has no roots whereby to maintain a hold upon the ground except at the very surface; "and because it has no depth of earth it withers away." If the manure is spread upon the young plant just started into growth early in October it may be saved. The few weeks during which it may establish itself in the soil will practically be doubled in length by a quickened condition of existence. The extra covering too will act as a protection against light frosts, and the period of suspension of growth will be deferred somewhat. The soil will also have absorbed the soluble part of the manure carried into it by the fall rains and become permanently improved thereby. This store will be drawn upon in spring by the growing crop, and will be wholly utilized, and nothing will be lost. On the other hand, the manure spread upon frozen ground is of no use to the plant at that time, for its life is in such an inactive state that it can not receive nourishment. There is no growth to assimilate it, even could the soil absorb it. But this it can not do. Frozen solidly, everything valuable that is washed out of the manure passes away over

the surface and is lost. When the early spring thaws come the surface is washed bare and nothing remains upon the soil. The manure is no protection even, for the plants are already frozen up, and the myriad of sere and yellow blades show that the crop is already past help. Its help comes too late. We have tried this plan more than once and would never repeat the experience. Rather than do so again we would refrain from sowing any fall crop, and either take a spring crop or fallow the ground. The loss will be less. If it is possible to top-dress the wheat crop early in October we would not hesitate if hurried to leave the manuring until then. But we would never top-dress in winter again nor when the ground is frozen.

The Decline of Grain-Farming in the East.

A single firm in the Mystic Valley, Conn., imported and sold 30,000 bushels of corn in the year 1872, and this probably was not half the Western corn consumed in a population of 10,000, of which nearly one-half are farmers. This corn went to the supply of families in the villages, livery-stables, cart-horses, and a good deal of it to the horses and cattle upon farms as a substitute for hay, there being but a little difference between the price of hay and corn per pound. This fact indicates the great change that has come over the large part of Massachusetts, Connecticut, and Rhode Island in the last thirty years. They do not raise their own breadstuffs or provender. Wheat ceased to be a remunerative crop long ago, and the sight of a wheat-field is exceedingly rare. Even rye is so scarce that the straw sells from \$20 to \$25 per ton, and is worth more per acre than the grain in ordinary crops. Oats are raised but in diminished quantities, and, as a rule, are consumed upon the farms. Almost everywhere in the section indicated, the manufacturing interest thrives. Smart towns have sprung up in the valleys of all the streams, and there is comparatively little water power that is not utilized. The streams are all dammed, and enormous reservoirs are built near their sources, or natural ponds are raised to supply water in the summer drouths. Factories built in the most substantial manner of stone and brick have been put up near these dams, and a large population has gathered around them. The capital and skill of the people to a large extent have been invested in these villages, and almost everything that meets human wants and can be sold, from a penny toy to a steamer costing a half million dollars or more, is made here. Every year sees a large increase in the variety and quantity of these manufactures. New machines are patented, and forthwith a new factory springs up to meet the new demand. It would take a large volume to give the names of these manufactured goods. Many of them are monopolies for a time, and the profits are large. The companies that own the patents can afford to give a higher price for capital and labor than farmers, and, of course, they secure both; more than this, they secure the farmers themselves, or their sons, because they get better pay than they could in working the soil. The old homestead is frequently sold to the next neighbor at a sacrifice, because the farming interest is depressed and the demand for farmers is small. Many farms are sold every year at prices that would not much more than pay for the original cost of the buildings. When men think they can make more money in man-

ufacturing industry than upon the farm they will not cultivate the soil. Grain-farming, which comes in competition with the prairies of the West, necessarily declines. A new class of people, Germans and Irish mainly, are coming in to cultivate the suburban farms. They have much more frugal habits than Americans, are eager to become land-holders, and in a few years own the farms. This decline in the grain products of New England has its compensations. Fruits and vegetables take the place of the cereals, the cities are more cheaply fed, and all classes are better paid for their labor.

English Prize Farming.

It is not from English farmers who merely rent their farms that we hear the complaint that their business is not profitable, but from the owners of American farms; yet these English farmers each year pay large sums for rent, and still larger sums for permanent improvements upon the land, from which they derive but a temporary benefit. At the same time we own our lands, and in our estimate of profit the interest on their cost rarely enters into the calculation as a charge upon the receipts; yet the complaint is general that our farming does not pay. Possibly there may be something in our want of good management, and a comparison with the methods followed by some English farmers who have been competitors for the prize of \$500 offered by the English Royal Agricultural Society, might help to point out the weak spot. The farm which was awarded the prize was one occupied by Mr. W. G. Walgate, of 470 acres, of which 120 are in grass. His rotation is one of five years, viz.: turnips or other roots, spring grain (wheat, oats, or barley), clover, wheat and oats, or peas and beans. The stock consists of 160 heavy long-wool sheep, or as many more as may be needed to consume the roots; a large number of pigs, many of which are purchased for fattening, and not reared upon the farm; 40 bullocks for fattening, and 12 horses. The labor costs \$8 per acre. All the manure made goes to the root crops, with 600 pounds of bone dust and 400 pounds of superphosphate per acre in addition. The consumption of oil cake and other purchased feed is immense; the bullocks eating 6 pounds a day while grazing, with 7 pounds of meal per day added when finally fed on turnips; *the manure is, therefore, very rich.* The wheat is sown in drills 9 inches apart, and 8 to 10 pecks per acre of seed is sown. This crop is horse-hoed, also hand-weeded. The clover fields are sown with 14 pounds of white and 7 pounds of red clover seed per acre, with a little Rib-grass (Narrow-leaved Plantain) mixed. This farm is said to have been evidently under profitable management, and on no other farm was there such an excellent lot of stock in the fields. Mr. Walgate has been a tenant of this farm for 25 years, and had built the greater portion of the farm buildings himself. One of the other farms was admired for its neatness both around the farm-stead and the fields. The report says a more charming garden, tidier fields, better roads, and more perfect fences were never seen. The other of the three farms competing was managed in a similar manner to the prize farm, but the special object of admiration was a magnificent wheat field.

Now in comparing the condition and management of these farms with that of the general run of our farms, there are a few leading points of difference. They are the root culture,

liberal feeding of cattle and production of rich manure, clean cultivation of even the wheat crop, heavy manuring at the commencement of the rotation with two hoed crops in succession, beans (which takes the place of our corn) and turnips, and a clover crop between the two small grain crops. The abundance of labor is rendered necessary by the system of management. It is not necessary to point out wherein we fall short in any respect; it speaks for itself. There is nothing here impossible of achievement by any American farmer.

Stock-Raising at the West.

The business of raising stock in the extreme West is undergoing a change. Texan cattlemen, at least those of the eastern and central part of the State, declare that "cattle-raising there is played out." We have heard the same remark made as to Colorado. The reason is that settlements and homesteadings are occupying the range, and the feed is becoming very scarce. The losses of stock last winter in Texas and some parts of Colorado were greater than ever before, and the profits have diminished to 25 per cent or less. This, of course, is inevitable from the circumstances to which the business of cattle-raising is now subjected. Still, this occupation has attractions for some men, especially young, rather restless individuals who love adventure and a life of activity. Both of these are to be enjoyed in cattle-raising, and in certain localities there is still scope for its profitable exercise. Western Texas, Southern Colorado, and Western Kansas afford a field for adventure of this character. Probably the locality best suited for those whose inquiries are now before us, and which, in some measure have led to the production of this article, is the extreme western part of Kansas, along the Arkansas valley, and on the uplands north and south of it. Westward from Fort Dodge to the mountains, and from the Indian Territory northward, there are still vast ranges unoccupied on which large herds may be pastured. In the neighborhood of the fort one drove of 17,000 head was fed during last winter and spring, and several smaller droves were fed lower down the river along the immediate neighborhood of the Atchison, Topeka and Santa Fe Railroad as far as Great Bend and the Valley of the Walnut in Barton Co. East of this point large droves can not find room, as the country is now comparatively well settled, and stock-raising must be carried on in a different manner, as to which we may have something to say at another time. Just now we desire to give an idea of what an intending stock-raiser "out West" can or must do.

Droves of "Texans" are brought into this part of the country for sale every summer. They come as beeves or as stock cattle—that is, cows, steers, heifers, calves, etc., not fitted for beef, and brought with a view to sale. From these herds purchasers may select either stock cattle, cows, heifers, beeves, or yearlings, as may suit their purposes. The prices generally current are \$10 for cows, \$6 to \$8 for heifers, \$5 for yearlings, and \$15 to \$30 for beeves, according to condition, if taken as they run. If selected, a trifling advance is charged upon these prices. If stock cattle are purchased, it is mostly for the purpose of breeding, and this is the business which well managed may be made the most profitable. A herd of a few hundred young cattle, all cows or heifers, with sufficient

full blood Shorthorn or Devon bulls well cared for, could not fail to be a profitable investment in the hands of a man who understands his business or is possessed of fair intelligence and shrewdness. Beeves are purchased for feeding in more easterly districts, where tame pastures through the summer and corn in the winter can be procured for them. They are thus brought into condition for market. But large numbers of beeves are sent to market from the large herds off from the grass on the open prairie. From the large herd already mentioned fat animals were shipped all last winter to the Chicago market, as were others from Great Bend, Wichita, and many other points in this and other localities. They were fed on the open country, with no other shelter than the banks of the streams, the sparse timber, and breaks in the surface afforded. No hay or other feed was provided, the self-cured prairie grass was all they had for fodder. Water was had in abundance from the Arkansas and other streams. This fact is an evidence of the favorable nature of the climate, or rather of the supply of feed and water, for with ample supplies of these the cattle thrive well during spells of cold in which buffalo-hunters freeze to death.

The appearance of a herd kept under these conditions is pictured in the scene, which represents a portion of the Arkansas Valley with Fort Dodge in the distance. The herders, who are Texans or Mexicans, or a mixture of the two, are mounted upon mustangs or Indian ponies, and keep outside of the herd and prevent them from straying. If the cattle are inclined to get out of bounds they are followed and driven back again. Two herders will care for a drove of 500 to 1,000 cattle. Their homes are carried with the drove, being covered wagons, which when there are several together are generally drawn up in a circle or "corralled," especially when they are camped near the Indian Territory.

It is not to be supposed that these herders are the most civilized of men; on the contrary, they are what may be called rough, and on the whole are uninviting to a stranger, especially when gathered around the saloons in the frontier "towns" as they are called, but which are really a few wretched shanties. In these the herders delight to spend the hours or days which they snatch for recreation from their regular avocations. The new comer who has been used to civilized life will look with more than doubt upon the rough board-partitioned rooms in which stray bullet-holes here and there let in the light, and to each of which may "hang a tale" of some unfortunate who "died with his boots on." The beds and bedfellows he will meet here will be those with whom necessity sometimes makes us acquainted, and he may not unlikely open his eyes after a night's well-earned rest upon a pillow not at all downy, to look straight into the muzzle of a seven-shooter casually lying beneath the head of his next neighbor upon the very closely adjoining couch. But the question as to "what is your business?" is kindly meant, although not calculated at first to inspire one with confidence; and unless it be for men who have loose notions as to property in horseflesh these rough features of life have really no element of danger in them. Those who desire to become cattle-men must put up with some of these inconveniences, and those who think they would rather not had better keep their stock inside of a fence a hundred or two miles further east. It may be accepted as a fact that the day of large droves



DRIVING CATTLE.



WHAT IS YOUR BUSINESS?

such as we have heard and read of has gone, never to return in our present territory. The influx of settlers into this Western country is astonishing, and the public range being public

pastoral system must give place to another in which these half-wild stock can no longer be raised with profit. With the necessity for purchased and fenced stock farms a more profitably

of the long-legged, raw-boned, long-horned Texan. The market relieved from the competition of this coarser stock will certainly not be less remunerative, and prices can in no case fall.



TEXAN CATTLE IN THE ARKANSAS VALLEY, NEAR FORT DODGE.

property is open to all comers. The rights of the smaller drovers already trench upon the facilities of the larger ones, and it is only a question of time how soon this semi-barbarous

fed stock must be kept. Grades of good beef stock, Shorthorns, Devons, and Herefords, with those of Ayrshire and perhaps Jerseys to supply the demands for dairy cows, will take the place

The outlook is favorable for a profitable business in raising and feeding beef cattle for the Eastern markets in place of shipping corn, and this is a consummation devoutly to be wished.



A HERDER.



WAGONS "CORRALLED."

The Salt-Marsh Centaury.

All along the coast from Massachusetts southward, wherever the marshes are near enough to

bilities are that it would not succeed at a distance from brackish water. The name Centaury is used as a common one for several of the Gentian Family and to other plants, and is an

the membrane is of the same density. A ripe tomato or plum may be considered in the condition of the bladder of syrup. The rich juices of the fruit correspond to the syrup, and the



SALT-MARSH CENTAURY.—(*Sabbatia stellaris*.)



GREEK VALERIAN.—(*Polemonium reptans*.)

salt water to be brackish, there is found the Salt-Marsh Centaury. In August and September it is in flower, and often in such abundance as to attract the notice of those who are not especially interested in flowers. Hence we often get specimens from sportsmen and fishermen for a name. Whether seen in a mass or examined singly the plant is a most beautiful one. It belongs to the Gentian Family, and is botanically *Sabbatia stellaris*. The genus *Sabbatia*, dedicated to an Italian botanist, is a showy one, and there are some eight species in the Northern States. As the botanist only is interested in the minute characters which separate these plants from the Gentians, we will give but one. In the *Sabbatias* the corolla is flat or wheel-shaped, while in the *Gentians* it is tubular or funnel-shaped. We give an engraving of the Salt-Marsh Centaury. The stem is about a foot high, much branched, and often marked with prominent lines which extend downwards from the bases of the leaves. The flowers are upon the extremity of the long and slender branches, five-parted, and of a deep bright rose color. At the throat of the corolla there is a yellow star, which is surrounded by a very deep red border. It is from this very conspicuous star in the center of the flower that the plant gets its specific name, *stellaris*. This, like other species of *Sabbatia*, is biennial. We have heard of no attempts to cultivate it, and the proba-

old Latin name that has passed into common use and is frequently pronounced as century.

The Cracking of Fruit by Rain.

Almost every one has noticed that juicy fruits such as plums, peaches, grapes, tomatoes, etc., will be cracked by a rain. The phenomenon has been of painfully frequent occurrence the past season, and the losses to some growers have on this account been heavy. The cracking has been explained in various ways, but we think it is properly attributed by Boussingault to *osmose*. If a bladder filled with syrup be immersed in a vessel of water, the water will after a while become sweet; the syrup passes through the membrane of the bladder into the water, and correspondingly the water passes into the interior of the bladder. But this interchange is not an equal one; the lighter liquid, the water, passes in many times more rapidly than the heavier liquid, the syrup, passes out. The consequence will be that the bladder will be distended to its utmost, and at length burst. This is a general law, that where two liquids of unequal densities are separated by a membrane, whether animal or vegetable, they will interchange, the weaker liquid passing more rapidly than the denser one, and this will be kept up until the liquid upon both sides of

thin membrane which forms the skin of the fruit represents the bladder. When the ripe fruit is kept constantly wet with water by a rain, *osmose* takes place, and the water passing through into the fruit distends the skin, which, not being very strong, is soon ruptured. If the fruit were to be surrounded by a liquid denser than its juices, it would, instead of expanding and breaking, shrink, and the skin become shriveled. When strawberries or currants are sprinkled with sugar, a syrup is soon formed by some of the juice of the fruit, and this being considerably denser than the juices of the berries they are soon flabby and shriveled.

The Greek Valerian.

There are some common names that are puzzling. Why one of our native plants should be called "Greek Valerian" is past finding out, as being American there is nothing Greek about it, nor is there anything except the fact that it has divided leaves to remind one of the Valerian. The plant in question is a native of the woods at the South and West, and has long been in our gardens, where it well deserves a place as one of the most cheery of early spring flowers. Being a perfectly hardy perennial, it takes care of itself, and asks no other aid than that the clumps when they get too large shall be divided.

If the common name of the plant is of obscure origin the botanical one, *Polemonium reptans*, is not less so, as *Polemonium* may be from a Greek word meaning war, from the name of King Polemon, while *reptans* is very absurd for a plant that was never known to creep. The plant forms a handsome clump, throwing up stems six inches to a foot in height, which bear along their sides compound leaves of seven to eleven leaflets and at their summit loose corymbs of small, nodding blue flowers. The engraving shows the upper portion of a flower-stem of the natural size. The usual color of the flowers is a light lively blue, and there are paler varieties, and some even with white flowers. It is an excellent old-fashioned plant, and worthy of a place in any collection of hardy border perennials.

"Kyanizing" Plant-Labels, etc.

The following method of "Kyanizing" wooden labels that are to be used on trees or in exposed places is recommended in a German paper. Thoroughly soak the pieces of wood in a strong solution of copperas (sulphate of iron), then lay them, after they are dry, in lime water. This causes the formation of sulphate of lime, a very insoluble salt (gypsum) in the wood. The rapid destruction of labels by the weather is thus prevented. Bast, mats, twine, and other substances used in tying up or covering trees and plants, when treated in the same manner, are similarly preserved.

At a recent meeting of a horticultural society in Berlin, Germany, wooden labels thus treated were shown which had been constantly exposed to the weather during two years without being affected thereby.

Packing and Marketing Produce.

BY J. R. HELFRICH.

QUINCES

should be carefully picked, and when thoroughly cooled off and dry packed in clean, new tight barrels. Put a layer of the finest in the bottom, lay on their sides and press close together; handle so as not to rub the bloom off; then partly fill and shake; continue until the barrel is so full as to require a screw or lever press to bring the head down to its place. Nail and line-hoop the head, and mark the other end as the one to be opened, with the consignor's name and also to whom consigned. Care should be taken to keep out all quinces that are specked or wormy. Assort and pack the sound ones according to size, marking them *extra, first, and seconds*. The wormy ones may be sent by themselves and marked *culls*. Those of first quality should be marked with the number of quinces in the barrel, also the variety, as "Pear" or "Apple."

TURNIPS.

The best variety for early is the Red-top Strap-leaf (Flat Dutch), as the small top of this variety will keep fresh longer and, containing but little juice or water, does not ferment and heat as soon as those having larger tops. Turnips should be thoroughly washed in a brook or in large tubs, frequently changing the water, and the tap root cut off close to the turnip. Tie in bunches of seven, putting the largest in the center and the others around it; keep the bottoms all even, and tie with strong bass, drawing the necks as tight as possible so they will not loosen in handling. After the outside moisture

has dried off they may be packed in barrels that have been bored or cut on the sides to give ventilation. Place the turnips against the outside and the tops towards the center of the barrel, and cover with coarse bagging or muslin. Mark the number of bunches, shipper's name, and to whom consigned, on the cover. They are usually sold 105 bunches to the 100. They may be packed in crates holding from 200 to 250 bunches covered and marked as for barrels.

Ruta-bagas are also in demand. These are planted very early, and marketed about the same time as the white flat turnips. They should have the small roots trimmed off close, also the whole of the top, leaving none of it on as it would ferment and rot them. Ship in barrels covered with bagging or cloth.

For the late fall and winter crop the tops and roots of all turnips are cut clean off, and the white flat ones should be washed clean, thoroughly dried, and put in barrels. Head up the barrels or cover with cloth. Ruta-bagas should be cut clean, top and bottom, but not washed.

BEETS, CARROTS, AND PARSNIPS

for early and near-by markets should be tied in bunches of seven, using bass strings. Tie at the neck, drawing tight, and keeping them flat and spread out fan-shape. Leave all the top on and wash clean. Pack in barrels, marking the number of bunches on the cover and also the shipper's name. The barrels should be well cut to give air. They may be packed in bushel crates such as directed for tomatoes. They are usually sold 13 bunches to the dozen, or 104 for the 100.

For fall and winter crops cut the top off close to the crown and wash clean. When the outside moisture is thoroughly dried off pack in barrels and cover with cloth or head. The barrels should be cut on the sides to give air.

HORSE-RADISH

should be laid evenly in barrels that are ventilated by cutting or boring several holes in the sides; it should be put up one hundred pounds, full weight, to the barrel. The roots should be sorted, putting the large straight ones by themselves, the smaller roots being put up and marked as seconds. After digging the roots should be trimmed, taking off all side roots and cutting the tops off close to the crown; if any of the top is left on it will rot and spoil the roots. After trimming it should be well washed in clean water, and before packing thoroughly dried in the shade until freed from all outside moisture; if not dry when packed it will heat and soften and become worthless. It is sold by the barrel and also by weight. It can be sent off late in the fall as soon as dug, or may be trimmed and kept until mid-winter or spring by digging a long trench sufficient to hold the crop, about four feet wide and two feet deep, on rising ground where the water can not settle. Pile the roots in the trench in layers commencing at one end up to within about six inches of the top, and cover with earth; ridge up so as to keep the water out. When wanted, commence at one end, take out, wash thoroughly, dry, and pack. In packing use clean barrels, the sides well cut, the barrels free from sugar, salt, or flour, as that would heat and spoil the roots; lay the roots straight, and put in 100 pounds to the barrel.

COST OF PLANTING TREES.—Experiments which have been made recently at the Illinois Industrial University to test the cost of planting different varieties of forest trees, have given the following results. The amounts charged against

the various species include the cost of the trees, as well as the cost of planting and cultivating one acre of ground occupied by them. The cost for each acre was as follows:

Norway Spruce.....	\$190 04
Green Ash.....	161 38
Chestnut.....	152 98
Austrian Pine.....	149 36
Scotch Pine.....	149 16
White Maple.....	145 78
White Pine.....	144 34
Catalpa.....	113 80
Bitternut.....	99 94
White Elm.....	97 12
White Ash.....	69 16
European Larch.....	63 86
White Willow.....	56 36
Osage Orange.....	46 08

These are all more or less valuable trees for shade or for timber, and it is unquestionable that an acre of any of the above varieties planted at the above rates of cost would be a very paying investment in any locality.

The Requisites of Cranberry Culture.

Cranberries do not ripen more surely than our annual crop of letters comes to hand bringing various inquiries concerning their cultivation. In order to cover the whole ground of cranberry culture, we a few years ago published a work which should serve as a hand-book to those who proposed to enter into the business. "White's Cranberry Culturist" (see our Book List) is by a practical man, and altogether the most complete that has ever been offered. While we are willing to answer any queries upon the subject, it is not practicable in this, as in many other cases, to publish full treatises upon special cultures. The few who would undertake tobacco, hops, flax, cranberries, grapes, or any special crop, will find it a profitable investment to procure at the outset a work especially devoted to the particular crop they propose to cultivate. It was the necessity for having fuller treatises than could be given in articles in the paper that first led us into the book-publishing business, which from the issuing of a few pamphlets on special crops has grown to the extent indicated by our book list. Most of the writers of letters relating to cranberries ask, without giving any especial account of their localities, if we think they can go into the culture with a prospect of success. The requisites are few, but unless they are present we would not advise investing much money or labor in cranberry culture. First a peat soil—all the better if the peat is underlaid with sand at a depth at which it can be turned up by the plow. If the peat is too deep for this then there must be, second, sand at hand, so that the peat can be covered with it at a moderate expense. Third, facilities for drainage, so that the water level may be under the control of the cultivator. Fourth, water so situated that the cranberry meadow can be flowed at will and in a short time. A locality that presents all these facilities may be converted into a cranberry meadow with prospect of profitable returns. As to the expenses, they vary with the locality, and run from \$100 to \$300 or more an acre. Another point that is inquired about—natural cranberry bogs can be greatly improved by sanding, and their productiveness increased in a most wonderful manner. This is best done in winter, the sand being deposited upon the ice to the depth of three to six inches, according to the character of the bog; the deeper the peat the more sand is required. The sand must be pure and without any admixture of clay or loam. Cranberries have been cultivated upon inland with moderate success. It is essential that the land be new and every

precaution taken to prevent the ingress of weeds. An account of the most successful attempts of this kind will be found in the *Agriculturist* for November, 1870.

Preparing for Window Gardening.

The desire to grow plants in the dwelling is an almost universal one. Some do it successfully year after year, while with others the attempt ends in annoyance and failure. There are many reasons for failure, but we can at the present only speak of two of these—beginning too late, and the selection of improper plants. Many put off all preparation for window gardening until cold weather has actually set in, when they go to a florist's, order a lot of plants, and soon find that they have a plant hospital instead of a source of pleasure. The reason for this is plain enough. The florist has had his plants for a month or two growing in a greenhouse, where artificial heat and a moist atmosphere have induced a tender and rapid growth. Taking plants from such a situation into the atmosphere of an ordinary dwelling is like bringing a Floridian to Boston when a November east wind is prevailing. It is not the change of temperature that affects the plants so much as the difference in light, moisture of air, and, not the least of all, dust. Again, others who have plants growing in the open borders that they propose to take into the house, being naturally desirous that the garden shall remain attractive as long as possible, allow their plants to remain out until the last moment, and do not lift and pot them until the nights become very chilly, if they do not leave them until frost actually warns them that their pets are in danger. To those who have plants growing in beds which they propose to bring into the house we would advise them to pot at once. The plants will be considerably disturbed at the removal; their roots have had freedom to wander, and generally can not be brought within the compass of a pot without cutting back. This, of course, demands a corresponding cutting back of the top; and the plant must have time to recover before cold weather comes. The question of soil is often a great problem. Any good fresh garden soil or that from beneath the sod in a pasture will answer for most plants as well as any of the prescribed mixtures. It must be so open that it will not cake hard, and if not naturally porous it may be made so by adding clean sand. When the plant will bear fertilizing it is better to apply it in the liquid form than to mix manure with the soil. The plants being potted in good fresh soil and properly pruned into shape, keep them in the shade for a few days and then give sun gradually. They will probably be established and have commenced a new growth before the nights become so cool as to make it necessary to bring them in-doors. The change from open air to the house must be made gradually. For some weeks after the first frost the plants only need shelter at night. Place them in a room where there is no fire, and open the windows every day until the weather becomes too cool for it to be safe to do so. Plants so treated will be, so to speak, acclimated, and a slight change will not affect them. If plants are to be purchased from a florist get them before the houses are closed and fire heat is used, and gradually inure them to the house as just described.

As to the selection of plants, a wide range is offered, and we will only name a few that are

quite sure to do well with any fair treatment. We strongly advise beginners—for whom this article is written, experienced growers needing no advice—not to undertake too much, nor expect too much. A few plants with healthy green foliage are a blessing in winter, even if there are no flowers. If we could have but one plant for a window it would be an Ivy. It will grow almost anywhere; can be trained to please the fancy, and is always bright and cheery. Among plants for flowers, we place at the head of the list the Chinese Primroses. They are single and double, and from white to deep crimson. With half a chance they will bloom nearly all winter long; but don't get plants that have made a forced growth, or they will fail. The old "Calla Lily" (*Richardia*) is another admirable plant succeeding with the simplest treatment. The winter-flowering Begonias of the *fuschioides* style are to be commended. The "Crab's Claw Cactus" (*Epiphyllum*), Cyclamens, Geraniums, Heliotrope, Carnations, and Catalonian Jessamine would make a list quite large enough for most amateurs. "But you have not included Roses and Camellias," says an ambitious amateur. These two are very desirable but among the most difficult to manage, and their treatment may be spoken of another month. Nor have we mentioned the bulbs, which are of the easiest culture. Directions for the potting of these require a separate article, which is given below.

Bulbs in House Culture.

Every autumn many persons pot a number of bulbs in the hope of enjoying their bright and fragrant flowers in mid-winter, and a large proportion of these persons are much disappointed. After all their expense and pains they get only a few poor unsatisfactory flowers, if perchance they have any at all. In potting bulbs, as in other matters, there is a right and a wrong way, and those who are inexperienced generally choose the wrong. It is sometimes useful to tell how not to do it. Pick out we will say a Hyacinth bulb that has a green point, which shows the bulb is alive. Plant this in a pot and set it in a sunny window. The leaves will soon begin to unfold; when they are only two inches or so high you will see the flower-buds. After a while the buds will begin to show color, and you wonder why the flower-stem does not shoot up, as you have seen it, nearly a foot in length. The flower-stem refuses to budge, more or less flowers open languidly, and without making any satisfactory show soon begin to fade, and that is the end of the bulb. Disappointed, you set to work to find out the cause of failure, and turning the bulb out of the pot you find that it has made scarcely any roots, and that the little show of leaf and flower that appeared was entirely from the nutriment contained in the bulb itself. Having no roots, or so few as to be of little use, the bulb could not even take up the water necessary for growth. The way to do it is just the opposite of this. Select good, sound bulbs, the heaviest always the best, without regard to any green point. If the bulb is sound and firm at the top it is all right. Plant the bulbs as soon this month as they can be had, and put them away in a dark place for at least six weeks, where the temperature will be uniform. A good way is to set the pots in some sheltered place and cover them six inches to a foot deep with coal-ashes. It is well before covering to

invert a small thumb-pot directly over the bulb, in order that the young growth, should it start, may not be injured in removing the ashes. At the end of six weeks if you examine the pots the top will be found to have made but little if any growth, but if you turn out the ball of earth it will be found filled with roots. You now have a *rooted bulb* which can be forced at pleasure. Give it a warm place, plenty of sun and water as needed, and foliage and flower-stalk will push with astonishing vigor, and a fine truss of flowers will reward you for the pains. What is here commended for the Hyacinth is equally true for the Narcissus, Tulip, or any other bulbs that are planted in the fall. First get the bulb well rooted before exciting any growth above ground, which is accomplished by keeping the plant at a moderate temperature and in perfect darkness. Placing the pots in a perfectly dark cellar will answer. In whatever manner they are kept while rooting it is best to bring them out a few at a time at intervals of a week or more, in order to have a succession of bloom. Good garden soil or that from a pasture is all that is needed, and if stiff and close mix in enough sand to make it open. When the plants are growing well weak manure water or solution of guano (an ounce to the gallon) may be given once or twice a week, which will not only add to the vigor of the plants but improve the color of the flowers.

Pots made very narrow in proportion to their height are made especially for Hyacinths, etc., and have an ornamental outer pot in which to place the other when brought into the house. These are very pretty, but not at all necessary, as good results may be had with ordinary flower-pots. We prefer to grow Hyacinths and Narcissuses singly in pots, but if desired three may be put into a large pot. Tulips may go three or more in a pot, as may Crocuses and other small bulbs. The objection to having several Hyacinths in a pot is that they are apt to flower at different times, and one will be fading while the others are just coming on. Where bulbs are grown in water, in moss or in sand, the same precaution must be taken to keep them in the dark until the roots are well formed.

VARIEGATED PLANTS—by which we mean plants with variegated leaves—will run back to the natural state, and in propagating cuttings should be taken from those in which the marking is most distinct. The variegated Snowberry (*Symphoricarpos racemosus*) is a very pretty ornamental shrub; but it each season produces some branches upon which the markings are indistinct, and others with leaves entirely green. So with the variegated Ivy-leaved Geraniums, Tradescantia, and other plants. It is well to remove all these green shoots as they appear, as by their greater vigor they will rob the variegated branches of their proper sustenance. While it is desirable to choose well-marked shoots for making cuttings, it is not well to take those in which the white or light marking preponderates; such cuttings do not make healthy plants.

The Japan Creeper.

One of the most valuable of hardy climbers is our native *Ampelopsis quinquefolia*, which is known and largely cultivated both here and in Europe as the Virginia Creeper. We now

wish to speak of a species from Japan that is destined to be exceedingly popular, and we think it proper that it should receive the common name of Japan Creeper. It having been introduced into cultivation by Mr. Vietch it was called *Ampelopsis Vietchii*, a name by which it is known in the nursery catalogues, but this will probably have to give way to an older name, *Ampelopsis tricuspidata*. The foliage is quite unlike that of our native species, in which the leaves are five-parted; in this they are more or less heart-shaped and varying considerably. Some of the lower ones are three and five-lobed, while those on the upper part of the vine are often not lobed at all. They are about two inches across and somewhat longer. The color of the Virginia Creeper is a yellowish green, but in the Japan species the green is darker and bluish, with something of a metallic luster. The plant is remarkably well furnished with leaves, that overlap one another and make the densest imaginable covering of foliage. Like our native species it attaches itself by means of tendrils that have sucker-like disks at their extremities, and it clings with great firmness. It is put forth as a claim of this creeper that it clings

to wood as well as to stone or brick, but we think there are few cases in which it is desirable to have a plant attach itself permanently to a wooden structure. The foliage has a neatness and air of refinement that makes it a most suitable plant for the columns to a veranda,

and it is not less suited for the covering of large spaces. Like our native species, this in autumn takes on the most brilliant colors. Being perfectly hardy, it possesses every desirable quality to commend it, except to those who demand fine flowers as well as fine foliage, for, as in our own creeper, the flowers of this are not showy. The largest specimen of the Japan Creeper that we have

seen is at Wellesley, near Boston, the seat of Mr. Hunnewell, where it nearly covers the gate lodge with a dense veil of foliage. It is also to be seen in very fine condition at Prof. C. S. Sargent's place at Brookline, draping the



THE JAPAN CREEPER.—(*Ampelopsis tricuspidata* or *Vietchii*.)

stone columns of the veranda in a most graceful manner. Prof. S. writes: "I like it more and more every time I look at it, and hope before many years to see it as common as our own Creeper." The climate of Boston and vicinity is considered as a trying one for exotics, and a plant that flourishes there is likely to do well almost anywhere. The engraving gives the extremity of a shoot of the natural size. The older leaves are considerably larger than those represented. The young growth as it pushes out, feeling for a place where it may attach itself, is especially delicate and tender. To save answering questions, we may state that our principal nurserymen offer plants—under the name of *Ampelopsis Vietchii*—for twenty-five or fifty cents each, according to size.

A Barreling Press.

Whenever we have had anything to say about barreling fruit, we have insisted upon the importance of so packing it that it cannot move and become bruised in transportation. In Mr. Helfrich's articles upon packing produce for market he has spoken of the necessity of firm packing not only for fruit but for eggs. When fruit is barreled, the barrel should be so filled that a moderate pressure will be required to

bring the head into its place. A few of the apples, etc., next the head may be slightly flattened upon one side, but the rest of the contents will be kept from injury. The necessary pressure is applied in various ways. The simplest is to use a joist or other stick of timber for a lever. One end of this is placed in a notch in a post, or under a cleat nailed to a post or an old tree, as a fulcrum. The barrel is placed under the lever near the fulcrum, and power applied by a man pressing on the opposite end of the lever. Some blocks of wood will be needed for followers to place between the head of the barrel and the lever. A press of this kind will answer every purpose, but it is clumsy and unhandy. Several portable presses or clamps have been invented and patented, consisting essentially of a platform on which to stand the barrel; to this are fixed two upright iron rods, which are attached above to a cross-piece, in the center of which is a screw; the barrel being placed under the screw with the necessary followers, a few turns brings the head into place. Mr. Helfrich uses a still more simple press, which is shown in the engraving. There are two iron rods, one end of each of which is turned to form a claw to catch under the bottom of the barrel. The other ends of these rods are fastened to the ends of a bar that is bent at right angles, which we may call the handle of the affair. There is a strong cross-head which has a short rod at each end. The lower ends of these rods are also attached to the handle but a few inches distant from the ends where the other rods are attached. The working of the press will be readily understood from the engraving; the claws catch under the lower edge of the barrel, and the cross-piece, with a follower, goes across the head of the barrel: when it is put on the handle is upright, as shown in figure 1. It will be seen that by bringing down the handle a powerful leverage is exerted, the rods, which are caught by their claws under the bottom of the barrel, acting as fulcrums. The operator regulates the pressure by his foot, while his hands are free to fasten in the head, as shown in figure 2. This press has the advantage of being light, all in one piece, and doing its work with a single mo-



Fig. 1.—BARREL PRESS.



Fig. 2.—THE PRESS IN USE.

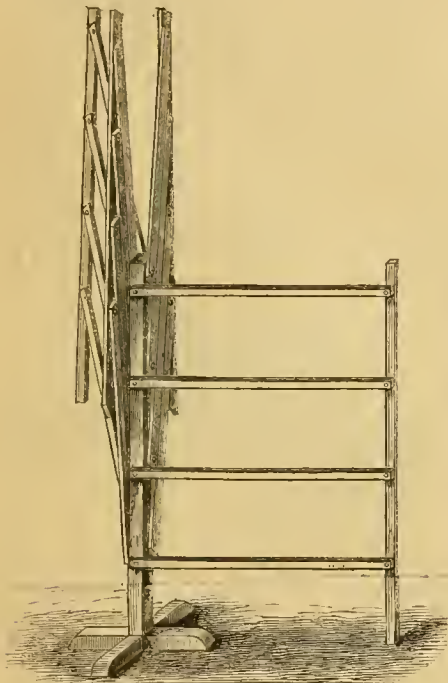
tion. Mr. Helfrich informs us that this very handy contrivance is not patented.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

A Convenient Clothes-Horse.

The clothes-horse here figured has several advantages over the old form. When opened to its full extent it has the capacity of a horse of the old style, and it can be used with one-fourth, one-half, three-fourths, or all of its slats spread, and when not in use it takes up but little room in its stable, which for this kind of horse is usually behind the kitchen door. After a trial of some weeks we found it an exceedingly convenient affair. It was invented by Mr. John A. Morfit, of Harlem, N. Y., who for a wonder has not patented it, but allows us to give the design for the benefit of our readers.



CONVENIENT CLOTHES-HORSE.

The engraving needs but little explanation. The central post, which has a foot to allow it to stand firmly, is of $1\frac{1}{2}$ in. stuff, and 4 ft. 6 in. high. Each of the four sections consists of four horizontals of $1 \times \frac{3}{4}$ in. stuff, 2 ft. 8 in. long, and an upright of similar stuff 4 ft. 6 in. high. The sections are all alike, and are put together by means of rivets and washers. If screws are used they will soon work loose. The central post is of pine, and the slats and uprights may be of ash or similar strong wood. This horse can be readily made by any one of ordinary mechanical skill, the chief item of expense being the rivets. On behalf of our readers we thank Mr. Morfit for bringing this household convenience to their notice.

Home Topics.

BY FAITH ROCHESTER.

FARMERS' WIVES.—Do we really wish to see ourselves as others see us? There is a chance, then, for any of us who are farmers' wives to see a portrait of ourselves painted pretty vigorously—whether quite truthfully or not each farmer's wife should judge for herself. I refer to a chapter in Mrs. Woolson's "Woman in American Society," entitled "Farmers' Wives." I will quote from the work, with some italicizing as I copy Mrs. Woolson's words. It should be remembered that Mrs. Woolson is a New England woman.

"Her constant labors are carried on within four bare and narrow walls, without change of scene or hope of variety. It is not strange that her strength becomes impaired, and that she often finds herself

at middle age afflicted with disease. And the physical weakness which must inevitably result from such a life is greatly increased by an astonishing ignorance of the manifold causes that tend to produce it. This is especially the case in towns lying remote from the great centers of intelligence. Practices and food that cities have learned to discard as most pernicious are still clung to in our farmers' homes without any suspicion of their injurious effects. *Visitors avoid, if they can, their diet of fried pork, their feather beds, their cotton coverlets, and their ill-aired rooms, and gladly escape out of doors for exhilarating rambles through field and forest; but these are supposed to be mere whims of their guests, indulged in without reason.*

"This peculiar animal food [pork], which intelligent people have learned to abjure, is usually cooked in the very manner which renders it most indigestible—by soaking in boiling fat, in other words, by frying. The wholesome bread raised by pure yeast, once the pride of our farm-houses, has given place to abominable compounds whose chemical ingredients are ruinous to both teeth and stomach. Everywhere around these houses sweeps a current of pure air; but it is as carefully excluded from the rooms as if it were a poison. Fortunately, however, it possesses the witch's privilege, and enters unbidden through cracks and key-holes. Walking is nowhere held in such ill repute as in these same towns, where there is so much beauty in earth and sky to tempt one abroad. It is an offence in the eyes of all for a woman to be seen sauntering along the roads, and gadding about is held to be one of the heinous sins. A horse and wagon must be brought to the door if the distance to be traversed is but half a mile, so that daily exercise in the open air is indulged in only by school children and those who work in the fields. These influences of *excessive toil, lack of diversion, unhealthy food, and ill-aired rooms, submitted to partly from necessity and partly from ignorance as to their results, can not but seriously impair the health of all who experience them.*"

Well! Does the coat fit? Here is another—try this. I find it in the private letters of a gentleman whose position and years and culture and habits of observation give weight to his words. He says: "Do you know the absolute cheerlessness, loneliness, wretchedness, almost hopelessness of a large share of farmers' wives? Work and bear children—that is the whole story."

But this is too bad! The farmers' wives whom these pictures fairly portray are not readers of these columns—at least, not many of them. And besides, if we are farmers' wives how can we help that? We wouldn't like to divorce ourselves from our husbands, nor to divorce them from their farms. I don't wonder at all that observers have begun to say such things about the lot of the average farmer's wife, but they may be too sweeping in their statements and too limited in the application. A good many wives and mothers in other fields of labor—mechanics and tradesmen's wives—might be described in almost the same way, though to be sure these generally live in villages or cities. It will do us no harm to consider the criticisms upon our shortcomings, and to go to work at once to improve our condition.

They complain of our ignorance. Well, knowledge is worth something; but I have good authority for saying that charity or love is far better. Patience and faith on our part are worth more to our children than any scientific information we could give them. But let us give these dear children, and give our husbands and maid-servants and man-servants and ourselves every chance we can to get health and knowledge and happiness.

I would like to go on now and speak of the advantages of the farmer's wife over her town sisters, for I would not like to have any discontented woman strengthened in unwise dissatisfaction by what is here written. Let every farmer's wife think over these advantages for herself. She will find them many if she looks deeply. Each situation in life has disadvantages as compared with others, and each has its compensations. The fact

is, we are all getting stirred up and unsettled, and any person who thinks his or her present lot too hard had better look well before leaping into what seems a better situation, or it may be just "out of the frying-pan into the fire."

RUFFLES AND ILL-HEALTH.—Just now I saw a woman dressed to go out, with her little daughter, five years old. In the morning she told me that she was sick again to-day, as she is almost half of the time lately. She is troubled with one of the numerous ills that female flesh alone is heir to—a disease which the use of the sewing machine greatly aggravates. The little daughter wore a white cambric skirt trimmed with four ruffles, all hemmed upon both upper and lower edge. Her polonaise, or apron, was also trimmed all around with a double-hemmed ruffle. All this ruffling has been done within the last fortnight while this woman has considered herself (and really has been) a suffering invalid; and it has been done by herself with the sewing-machine hemmer. Those long, straight hems, with the steady motion of the foot and the exertion of the muscles of the leg and abdomen, have done a great deal, in my opinion, to cause her hours of suffering and days of weakness, and to render her whole family uncomfortable, as a family is sure to be when the mother is too ill to give her usual oversight to the working of the home machinery. The woman is a sincere Christian, and it would be hard for her to understand my pain on account of the unenlightened state of her conscience. I do not mean to judge her or any of the sisters whose hearts are set upon ruffles and tucks, but you who read this page please just consider when you sit down to hem the next ruffle whether the time and strength expended in making it, and the labor always required to iron it properly whenever the garment is washed, are the best that you can be doing for yourself and your family and our big human family. It is not necessary to dress your children so plainly as to expose them to the ridicule of ill-bred associates, there are simple trimmings that may be used; but to a well-cultivated taste good materials look best simply made up, and poor materials look silly enough when much labor is expended upon them.

THE DEMAND FOR HEALTHY WOMEN.—Public opinion seems to be setting in favor of strong and healthy girls. Pale faces are not thought so interesting nowadays as they used to be. A sneer goes round at the inefficiency of the feeble women who work for a living and ask for good wages. Young men ridicule the idea of tying themselves for life to the sickly girls who exhibit loads of expensive dry-goods upon their persons along the sidewalks, and they begin to praise openly rosy cheeks and stout figures. Indeed, it seems as though the pale and weak young ladies who, if they were of no practical use in the world, were at least admired and praised as interesting on account of their pallor and languor, were going to have a pretty hard time of it now. We had better not raise any more girls of that kind. I would not advocate any heathen practice of putting feeble infants to death, but I would strongly urge that more care be exercised to prevent our making feeble women of healthy infants. This subject demands the immediate attention of parents. Something must be done to save our daughters from unhappy lives, and from becoming acknowledged burdens to society.

WHERE SHALL WOMEN CARRY THE BURDEN OF THEIR CLOTHING?—There seems to be a difference of opinion upon this point. On one side it is asserted that the internal organs of the abdomen are so delicate and so easily displaced or deranged, that it is conducive to weakness and disease to carry any weights hanging upon that portion of the body. It is replied to this that women's shoulders are not strong enough and suitably shaped to carry so great a weight as Fashion puts upon women in the way of dress without undue weariness to the shoulders, and that the greater breadth of the female form at the hips suggests the propriety of carrying the chief weight of the clothing there. There is some sense in this reply, for it

does happen that even the long, heavy sack or circular cloaks sometimes worn by women become a heavy burden to weak or even to very sloping shoulders. No doubt it feels more comfortable to carry heavy skirts hanging upon the corset rather than suspended from the shoulders, for a well-fitting corset so equalizes the pressure around the waist and abdomen that no one spot suffers especially. But the corset is only an enemy in disguise. I hardly think, however, that it can be driven from the field so long as our present style of dress remains in fashion—certainly not while basques and “bias waists” are generally worn. [Did it puzzle any reader of Miss Phelps's papers in the Independent to know what she meant by “bias waists”? I am sure it did. She must have meant what some of us call “plain waists,” or the waists cut to fit the figure with “biases” or “darts” in front.] The charm of these waists is their perfect “fit,” of course; and they bring with them the temptation to pinch and pad the figure, and to use a case of bones or steel about the waist to prevent wrinkles and help make a good figure.

An old lady tells us that she and her sister used always in her girlhood to finish up their corsets with tops fitting their shoulders, so that their corsets never pressed very heavily upon their hips, abdomen, and back. It is nonsense to talk as though women who wear skirts unsupported from the shoulders wear the weight upon the hips. In a majority of such cases the chief point of support is the abdomen, and that is where the pressure is chiefly felt and chiefly mischievous. The back also suffers. I do not think that suspenders can ever meet with much favor among women, certainly not with women of well-developed busts. I would not put them or anything that would press over the bust upon a growing girl for fear of hindering a fine development of the form. I do not know of anything better than a well-made under-waist for women and for children. It is cleanly and comfortable (fitting the figure loosely, of course), and makes a good support for the skirts, either by means of buttons or by means of a gored or circling piece about two inches or less in depth, with a long whalebone or rattan run in the hem. This is set on around the bottom of the waist, and skirts buttoned around the waist hang upon it and make no pressure upon the hips. A piece of the cloth of the under-waist sewed on where the “bust” ought to be, either fulled like a scant puff or set on plain like a pocket open at the top, serves as a receptacle for any material which women defrauded by nature of a good womanly form are tempted to carry. The best filling for those pockets is probably white curled hair or moss. It is a great pity that any woman should need such additions to her wardrobe, but everybody knows that it is frequently the case, and less simple and less artistic articles for the purpose are openly exposed for sale. The waist proposed here, such as many have worn for years, suits some of us better when made over the shoulders like a Garibaldi or Speneer waist, but gathered into a belt five or six inches wide with gores (or darts or biases) to fit the figure. This seems to give more freedom to the arms, and gives a good “set” to the loose dress-waist worn over it.

WHEATEN GRITS.—It is not necessary to use a farina-kettle in order to cook wheaten grits nicely. That way is certainly safe and good, but our steamed grits are also good. Almost every family has a steamer, and so is prepared to cook wheaten grits without failure. Fill a basin or other dish that will set inside the covered steamer about a third full of the grits (or cracked wheat) and cover with cold water, filling the basin nearly full, salting to taste. Set the steamer over a kettle of boiling water and steam steadily for two or three hours. No very exact rule can be given, as the grits differ in quality.

PIE-CRUST.—I have kept still upon this subject, because I have been so well aware that my pies would seem quite ridiculous to regular old pie-makers; but it stirs me up so just to read over the

recipes for pies and pie-crust in Marian Harland's much-praised recipe-book that I must say a word for the stomach's sake. I am afraid that book is wrongly named “Common Sense.” There are good recipes in it, and there is some sensible talk, but “common sense in the household” is yet to come, I should think. Speaking favorably of pie-crust, Marian Harland says: “Not that I recommend pies of any description as healthful daily food—least of all for children. But since they are eaten freely all over our land, let us make them as wholesome and palatable as possible.” Then she follows with this recipe for “family pie-crust”: “One quart of flour; $\frac{1}{2}$ lb. lard, sweet and firm; $\frac{1}{2}$ lb. butter; one small tea-cup ice-water.”

A pound of shortening to a quart of flour! I do not doubt that something very fine and delicate may be made of these materials properly handled; but I should not think that any well-informed person would like to say grace over such things.

Now, I do not see why pies might not be a part of our daily food, and why children might not eat them as safely as bread and butter and plain fruit sauce. The chief objection would be the labor of making them, but that need not be very great. The hygienists would not agree with me, but I think it the safest way to use a little baking-powder in the pie-crust—then with ordinary care in baking you will never have heavy crust. The crust will be sufficiently tender if you use only a table-spoonful of butter to shorten each pie—not a heaping one either. Rub this thoroughly into the flour, having previously mixed the baking-powder well with the flour. A small tea-cupful of flour is sufficient for a two-crust pie; a pint of flour is a liberal allowance for two pies. Use very little cold water to wet up the dough, having it quite firm as you roll it out. Roll it very thin, as the powder is sure to make it rise a little. Bake pies upon the bottom of the oven.

Now, what is there about this crust to give a body the dyspepsia? I like to make Graham pie-crusts because they require even less shortening than fine flour crusts in order to make them tender. I often mix them with just good sour milk (usually a little cream goes in) and a little soda. Very tender crust may be made with cream for mixing, sweet cream and a little baking-powder or sour cream with a bit of soda. If you do not like the looks of these pie-crusts after they are done you can sift powdered sugar over them while warm.

The particular general warning for the filling of pies is—beware of too free a use of spices, and use care that they be neither too sour nor too sweet. Plain fruit pies are very good articles of diet.

Children's Work—An Important Question.

BY SUSAN MANN.

What work is suitable for little children, and how many hours a day has a mother a right to employ them? I am (so called) *mistress* on a large farm, where on an average three men are hired all the year round. I have five children less than eight years old. I am sick most of the time, and I seldom have a hired girl. I appreciate the benefit children get from helping mother, but can not be blind to the harm I received in childhood from my father's repeatedly urging mother to spare her feeble strength at my expense. “Why didn't you let Susan do it? Susan might do it. Have Susan do it!” were his frequent expressions when she wished for rest from work or help in it.

My husband is not so exacting with me as he used to be; indeed, my health fails too surely, and doctors too invariably prescribe “quiet” to let him find fault with my poor work as he used to; but in his ignorance of housework and children (though having helped me and taught school he thinks he understands both), and in great thoughtlessness, he declares that I do not make the use of the children that I ought. The two elder do all the setting table, washing dishes, and sweeping, and bring much fuel and water. They hunt eggs, gather fruit, pickles, and vegetables, and wash and dress and undress Carrie and Robbie. Now, have

I—has their father—a right to ask them regularly to work a washing machine or patent churn, to iron or mop, make beds, or hunt cattle out of unfenced corn-fields?

If by failing to “ask my husband at home” I seem disrespectful to him, I excuse myself by thinking that writing is unlike talking, that I wear a mask in my false name, and that my relations to future generations through these children of ours has much extended my relationship; and moreover I assure you that I have the kindest husband and best man in the world.

Cooking Cauliflower.—“W. P. C.”

Nothing is simpler. Remove the outer leaves and cut the inner ones off level with the heads, and if these are large cut into halves or quarters or even smaller, as may be, and look within carefully for “worms” or other insects. Wash and put into boiling water, and boil for twenty minutes or until the stalk portion is quite tender. Take up with a skimmer, drain, and place in a dish, and pour over a sauce of drawn butter. This is all the dressing that those who appreciate the delicate flavor of cauliflower require, but there are some who will drench it with vinegar, and thus degrade this most royal vegetable to the level of a cabbage. We know of no help for those who will eat vinegar on cauliflower and sugar upon tomatoes; they fall back, as they have a right to, upon the defence of “there is no accounting for tastes,” and in these cases we should say that there wasn't.

Recipes.

Canning Green-Corn.—The following comes from Mrs. J. V. S., Freeport, Ill.: “I noticed in your August number an article on canning green-corn and peas. You say it can not be done in the family. Now I have put up green-corn for a number of years with excellent success. My way is this: Take the corn when right for eating; cut from the cob and fill into tin fruit cans, packing it in; then set on the stove in cold water, and boil three hours hard; then solder up tight. If your cans are tight, and you keep it from freezing, you may be sure of having tender, juicy corn in the winter. I put my cans in the boiler to cook it.”—Though rather late to be of any use we give our correspondent's note. The very fact that the cans must be soldered is one great obstacle to putting up corn in the family. Not one man in a hundred nor one woman in a thousand can solder up a can. Those who make a business of canning corn boil it in soldered cans for 7 hours, and then often fail.

Grease upon Floors.—An Iowa lady writes that grease can be readily drawn from an unpainted kitchen floor by putting plenty of soft-soap on the grease spot and rubbing a hot flat-iron through the soap. One application generally suffices; sometimes another is required, washing thoroughly afterwards.

Iced Tea and Coffee.—These drinks, which have long been popular in tropical countries, are now becoming better known with us. In very warm weather they are peculiarly refreshing. Iced tea in particular will satisfy thirst better than almost any other liquid. A good, high-flavored black tea should be used, and if it is to be cooled by putting lumps of ice into it should be made very strong to allow of the weakening caused by the melting of the ice. The better way is to prepare the tea of the usual strength, and to cool it by setting the vessel that contains it upon the ice. Both tea and coffee may be used with sugar and milk, but the majority of persons prefer them without either.

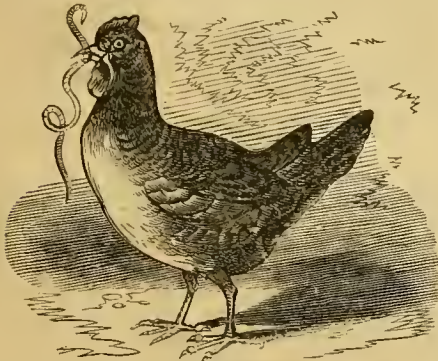
Broiled Tomatoes.—Cut medium-sized tomatoes in halves and put them upon a gridiron cut surface down. When the surface appears to be somewhat cooked turn them, and finish the cooking with the skin towards the fire. The cooking should be gradual, so as not to break the skin. Place upon a dish, and put a little salt and a lump of butter upon each half and serve quite hot.

BOYS & GIRLS' COLUMNS.

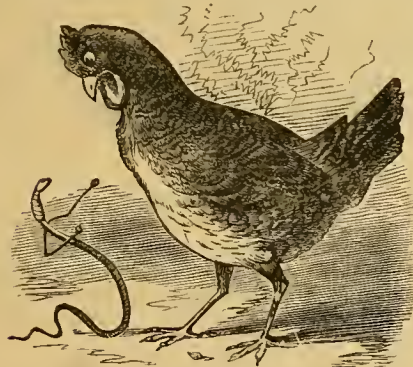
The Early Bird.

We have not had any nonsense pictures in a long time. You would hardly think it, but nonsense is a very scarce article—that is good nonsense, that one can have a hearty and innocent laugh over. These illustrations, from Judy, a London journal for grown folks, are hardly funny enough for our young folks; but we will use them in the hope they will give a hint to some one to give us something better. Nonsense pictures should need no explanation, but with these we give a running tale—though different from the one given by Judy. Here you see the

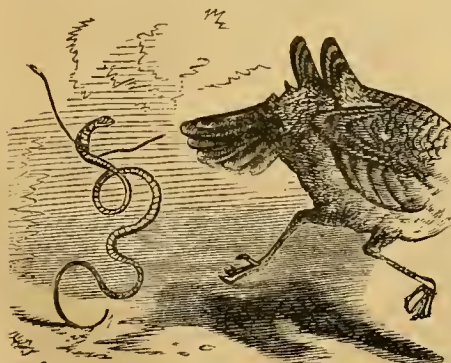
RUNNING TALE.—The chick has heard that it is the early bird that catches the worm, and you here behold the pursuit of the worm by the early bird.



THE EARLY BIRD has caught the earlier worm. It may be that running before breakfast gave the bird a dyspepsia that affected its mind, or it may be that the worm was of a kind not down in the books. At any rate,



THIS IS THE WAY the worm looked to the bird after the bird had dropped the worm to get a better hold. It may well look astonished. We do not blame it for doing what you see in the next picture.



YOU THINK YOU SEE the end of the tale—but no. The early bird, sad to re-late, went directly into the flower-

garden. The owner did not like to see fowl chick-weed among his cocks-combs and other flowers, so he administered a dose of



HENBANE, as it was the bandied thing he had.



HERE YOU SEE what became of the early bird. The history of the worm remains unwritten.

A Blind Spot in Your Eye.

There is a spot in your eye that is not sensitive to light, a part of the eye with which you do not see. The following directions for finding it are going the rounds of the papers, and may be new to most of our boys and girls: Shut your left eye, and with your right one look steadily at the cross below, holding the paper ten or twelve inches from the eye.

X

Now move the paper slowly toward the eye, which must be kept fixed on the cross. At a certain distance the other figure—the letter O—will suddenly disappear; but if you bring the paper nearer it will come again into view. You may not succeed in the experiment on the first trial, but with a little patience you can hardly fail; and the suddenness with which the black spot vanishes and reappears is very striking.

O

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

I am composed of twenty-eight letters.
My 21, 3, 1, 23, 9 is a boy's name.
My 20, 7, 22, 21, 2, 10, 18, 11 is an animal.
My 11, 9, 5, 14, 1, 15, 26 is a city in New Jersey.
My 27, 8, 23, 19, 17, 4 is frank.
My 6, 13, 19 is a fish.
My 6, 8, 7, 12, 16, 13, 9, 26, 17, 10 is one of the United States.
My 24, 15, 25 is an animal.
Every American should be proud of my whole.

F. C. R.

CROSS-WORD.

My first is in many but not in few.
My second in rain but not in dew.
My third is in earth but not in heaven.
My fourth is in eight but not in seven.
My fifth is in silver but not in gold.
My sixth is in young but not in old.
And now, if the letters you place aright,
You will see the name of a bird of flight.

ORREN ASHWORTH.

BLANKS.

(Fill the following blanks with words pronounced alike but spelled differently.)

1. Will the ——— to speak to me?
2. Have you ——— about the trimming of the ——— dress?
3. Joe, will ——— split that ———?
4. It was the most ridiculous ——— that was ever ———.
5. The ——— scratched John's ——— foot. LIZZIE M.

PL.

Sendmils saogver tretch hant range.

ANAGRAMS.

- | | |
|---------------------|--------------------|
| 1. Undo ye all. | 6. Man and flnte. |
| 2. Sacred alto. | 7. Large snit. |
| 3. Meet Jo'nny. | 8. An open hem. |
| 4. Dear Sir, save I | 9. E'en red hags. |
| 5. 'Tis a match. | 10. Angre ill-act. |

ALPHABETICAL ARITHMETIC.

R P L) M U B E A (U T E
T M P
U U T E
U B A U
O A R A
O B R E
O B R

CONCEALED RIVERS.

1. Cane grows in tropical climates.
2. My throat and neck are swollen.
3. I suppose I have taken cold.
4. May Nora go South this winter?
5. Yes; to reach Macon, go by railroad.
6. Are David and Mary going?
7. Charles lent Allen a ten-dollar bill.
8. Such a boy never will rise in the world.
9. Oh! I ought to have known better.
10. Jane, use your time better.
11. By industry we thrive.

VAU.

CHARADE.

Peaceable citizens dread my first.
My second but few wish to hear.
The criminal surely would take to his heels
If he thought that my whole were aeer.

SQUARE WORDS.

- 1.—1. Sometimes a nest. 2. A geometrical figure.
3. Armor. 4. Measures.
- 2.—1. A landed estate. 2. A plant. 3. A flower. 4. A verb.

F. W. BEEBE.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

CROSS-WORD.—Pheasant.

- ADDED LETTERS.—1. B-eagle. 2. G-oat. 3. Sol-E.
4. Bee-R. 5. B-light. 5. F-ox. 7. F-owl. 8. F-lute.

NUMERICAL ENIGMA.—Indianapolis.

PI.—Of all the phantoms fleeting in the mist
Of time, though meager all and ghostly thin,
Most unsubstantial, unessential shade
Was earthly fame.

ALPHABETICAL ARITHMETIC.—

2948157360(37746 (Key: Rockingham.

SQUARE WORD.—Π O P E

O V U M

P U R E

E M E U

HIDDEN CITIES.—1. Carson City. 2. Madison. 3. S-ybrook. 4. Rome. 5. Le Roy. 6. Lansing. 7. Omaha.

DIAMOND PUZZLE.—L

R A M

T A N K S

O U T C A S T

L A N C A S T E R

V E S S E L S

W I T T Y

H E R

R

REBUSES.—437. Concord. 438. Excel.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

It is now the 20th of August, and I must say a few words to the Mountaineers who have already sent in their lists, so as to put some of them out of suspense. It is too bad that so many of you have made the error of taking the Sierras for single mountains. "Sierra" means "saw," and is a term used to describe the notched appearance of the tops of mountains when seen from a distance. It always means a range or chain of mountains; and as I particularly specified "one mountain" the lists founded on any of the ranges (Sierra, Cordillera, Macgillivuddy Reeks, etc.) must be ruled out of the prize competition. The competitors, however, shall have honorable mention made of their names, with the numbers of rivers and lakes found, as a slight recognition of their industry.

Then I have had to curtail many a list to one-quarter of its original proportions because of a letter being used twice in the river when it occurred only once in the mountain, and because the same name was often



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THE GRAPE-GATHERERS.—Drawn and Engraved for the American Agriculturist.

repeated. So that many of you must prepare for disappointment. In fact, I must disappoint so many that I don't think I shall ever be tempted to offer another prize so long as I live.

A great many of my nephews and nieces have thanked me for the amusement and instruction given, "whether I win a prize or not." To them I return my thanks for their kind appreciation of my motives in offering the prizes. But, O dear! I had no idea there were so many rivers in the world! I am nearly drowned!

MELVINA A. S.—"Greenwich Observatory" is not a mountain. It is an observatory built by Charles II on the summit of Flamstead Hill, in Kent, England. The hill was named Flamstead after the great astronomer.

HARRY H. D.—The rebuz you send is a very ancient one, and we only want original contributions, thank you.

M. K. B.—You can scarcely call a sentence a charade.

M. L. A.—It is well that veracity isn't a necessity in an alphabetical arithmetical puzzle. "Rats can not eat!" The arrangement is quite ingenious.

C. P. TURNER.—Much obliged for your exhaustive examination of the sentences. Our terms were not so arbitrary as to exclude every one of the original words. If you will examine the sample sentence in the May number, which was pronounced all right but for the w's and s's, you will see there three of the original words—"a," "with," and "his."

Thanks for puzzles, letters, etc., to Mary C. S., Robt. W. M., Flon Venn., M. K. Boyer, C. W. Shelmaire, M. L. Andrews, Walter Henece, Arthur and Rannie, W. Woodruff, and M. E. Lynch.

Puzzlers need not waste their time by writing enigmas

on the names of our papers or editors. Please specify whether your contributions are for *Agriculturist* or for *Hearth and Home*.

The Grape-Gatherers.

You will think that the artist who made the sketch for the above picture must have been in the Southern States. We are not sure but he was; but the picture is not peculiarly Southern, as colored people, like others, are fond of gathering wild fruit, and the scene might have been anywhere from Canada to the Gulf of Mexico. It is a little remarkable that we have wild grapes growing the whole length and breadth of the country; so that those boys and girls who live in the short summers of Canada or in the short winters of Texas, and those who live near the Atlantic and Pacific, can all have if they choose their time of grape gathering. To be sure the grapes will not all be of the same kind, but the pleasure of hunting for them will be the same. The grapes ripen mostly in early autumn, just before nutting time comes—when the days are bright and the nights cool, and when to be in the woods or anywhere in the open air is a perfect pleasure. I said that the grapes are not everywhere alike; indeed, in most places two if not three kinds are quite likely to be found. Did you ever notice any difference in wild grapes except in the size? When plants differ in one thing they are very apt to differ in others. You will find that the Fox Grape of the north has not only large berries, but a large thick leaf the under side of which is very downy, while the Frost Grape has small berries with thin and smooth leaves. Then how sour the Frost Grapes are until they have been touched by the frost, and how sweet and pleasant the Summer Grapes

(still another kind) are long before frost comes. It is well for you to notice all these things now that you are young, as you will find the habit of comparing not only vines but trees and plants of great use when you get older, and when you get in the way of it you do it without thinking. A good woodsman knows every tree in the forest by its bark, and a good nurseryman can tell the hundreds of varieties of apple and pear trees by the color of the twigs, shape of the buds, and other points that most people do not notice at all. So when you go out for grapes this month, and find more than one kind, look well at the leaves and the color and smoothness of the twigs, so that you can tell the vines should you see them without any fruit on them. The three grapes, Fox, Summer, and Frost, are the common northern kinds. The youngsters in Southern States will find also the Bullace-grape, and those in Texas will find the Mustang-grape and others. Pretty much all the grapes that are grown out of doors east of the Rocky Mountains are cultivated forms of these wild sorts, while west of the mountains, especially in California, they can raise in the open air the choice European kinds that at the east are only grown in glass houses. But what do boys and girls who can get their grapes from the woods care about the cultivated kinds? The Fox-grapes are "foxy," and the others may be sour or packery, but they taste better than the choicest products of the hot-house. Do you know why? They are the product of your own exertions, and while you have been gathering them you have been gathering health and strength, you have enjoyed the peace and beauty of a perfect autumn day, and the joyous companionship of those without whom the day and the grapes would be as nothing. By all means let all the boys and girls everywhere go a grape-gathering.

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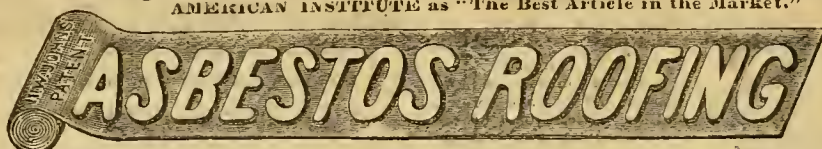
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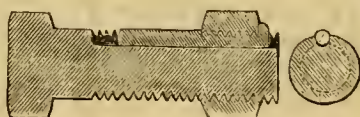
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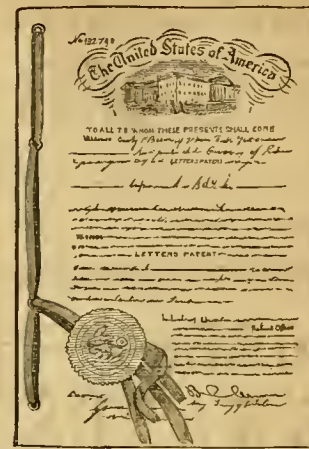
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Descriptions of Premiums.

(For number of Subscribers required, see Table, page 393.)

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No. 10. — Revolving Butter-Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 9.

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No. 33. — Extra Early Vermont Potato.—This remarkable potato is a seedling raised in 1867 from a seed-ball of the well-known Jackson White. It is supposed to have been fertilized from the Garnet Chili, as it resembles many seedlings of that variety. For five years the "Vermont" potatoes have been grown side by side with the Early Rose, both under the same treatment, and have proved seven to ten days earlier than that favorite sort; they are more productive, fully equal to the Early Rose if not superior in quality, flesh very white, dry, and starchy, excellent keepers, and in every way a most promising variety. We have made arrangements with **Messrs. B. K. Bliss & Sons, 23 Park Place, New York**, to supply us with the genuine article, to go by mail, post-paid, to any part of the country. They should go out before freezing weather, but when too late for this we will keep them until warm enough to mail them in the spring. This Premium can only remain open while the supply lasts.

Nos. 34, 35, 36, 37. — Sewing Machines.—A good Sewing Machine lightens the labor and promotes the health and happiness of those at home. We offer a choice of three of the best of the leading machines, all of which have been thoroughly tested in our own families, and give entire satisfaction. While all are valuable, each has some excellence peculiar to itself. **The Grover & Baker Co.** make two kinds of machines—the "Lock Stitch" and the "Elastic Stitch." The elastic stitch is remarkable for its elasticity, while it is at the same time very firm and durable. The structure

of the seam is such that, though it be cut or broken at intervals of only a few stitches, it will neither open, run, nor ravel. It sews directly from two spools, without re-winding. The "Lock Stitch" makes the stitch alike on both sides, and is easily operated. Either kind will be furnished. The Florence Machine makes different stitches, each being alike on both sides of the fabric. One of its special advantages is that it has the *reversible feed motion*, which enables the operator, by simply turning a thumb-screw, to have the work run either to the right or left, to stay any part of the seam, or fasten the ends of seams without turning the fabric. The **Willcox & Gibbs Machine** excels in the exceeding *simplicity of its construction*. Very little instruction and ingenuity are required to understand the few parts of which it is composed, and their use; and there is no excuse for getting it out of order until the parts are fairly worn out. One of its strongest recommendations is the *ease with which it is worked*, taxing the strength of the operator less than other machines. The new table and pedals are great improvements. The **Secor** machine is claimed to comprise the *fewest number of pieces* of any lock-stitch machine. Its tension is very simple, and no change is required in passing over seams. It will sew from *tissue paper to leather*. The tension-plates are close to the needle, and if the thread is cut from the spool, will work until the thread is exhausted. The needle is *self-setting*. All the works being above the table, they are easily oiled and cleaned.—All these machines have constantly increasing sales, showing the public estimate of their value. Either of them will prove a great treasure in any household—worth more than \$500. The \$500, at 7 per cent interest, would yield (less taxes) about \$33. Most families require at least four months of steady hand-sewing a year, costing, if all hired, not less than \$24 a month, board included, or \$96 a year. With a Sewing Machine, a woman can sew more in one month than in four months by hand. Here is a clear saving of \$72. But far above this—the everlasting "Stitch, stitch, stitch," the bending over the work, and the loss of sleep, have brought tens of thousands to early graves. We say to every man, Get your wife a Sewing Machine, even if you have to sell a favorite horse or an acre or two of land—get the Sewing Machine any way. If you can get one through our premium-list—well; but get the machine. —No charge for boxing the machines. They go safely as freight. Send for circulars, giving full instructions, to **Grover & Baker Mfg Co.**, 736 Broadway, N. Y. **Florence Sewing Machine Co.**, 39 Union Square. **Willcox & Gibbs Mfg Co.**, 653 Broadway, N. Y. **Secor Sewing Machine Co.**, 697 Broadway, N. Y.

No. 38.—Beckwith \$12 Sewing-machine.—While we advise buying a \$35 to \$45 Sewing-Machine, we have looked for one which, while brought by its low price within the reach of multitudes who can not afford the valuable higher cost machines, should be at the same time worthy of commendation. This we have found in the Beckwith Machine. It is well and strongly made, is simple, its use being quickly learned, is applicable to almost all kinds of family sewing, and has already been tested so thoroughly that hundreds of testimonials, from all quarters, have been given by those who are delighted with its work. Each machine is put in a neat, compact box, with *hemmer and guide, oil-can with oil, thread, different-sized needles, etc.*, with full printed directions for using. We offer these Machines on our Premium List. We will sell them to any who may wish to buy, for \$12 each, delivering to any express office in this city.

No. 39.—Beckwith Portable Family Sewing Machine.—While we offer the Beckwith \$12 Machine (Premium No. 38) we also offer the new Portable Machine, price \$30, which comprises all the excellencies of the former, with many valuable improvements. Its size and power are increased, and its capacity thus very much enlarged, without impairing its portability. There have been added cam and eccentric movement, a balance-wheel, and also an oscillating needle-clamp, by which the length of stitch can with the greatest ease be changed to the finest shade of variation without touching the needle. We will sell these machines (packed in a neat, portable case, with handle to carry it easily) to any one who may wish to buy, for \$30 each, delivering to any express office in this city.

No. 40.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" use it and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 41.—Universal Clothes Wringer.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in every family. The wringing of clothes by hand is hard upon the hands, arms, and chest, and the twisting stretches and breaks the fibers with lever power. With the Wringing Ma-

chine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co., Middlefield, Ct.** **R. C. Browning, 32 Cortlandt St., N. Y.**

Nos. 42, 43.—Melodeons.—These are excellent and desirable instruments, for the *Home Circle*, for small Churches, for Sunday-schools, for Day Schools, Academies, etc. Instrumental and Vocal Music in a school has a beneficial influence upon the pupils. We have seen the whole tone and character of a school improved by introducing a Melodeon.—Set the pupils to work and they will raise a club of subscribers for this premium. We offer the Melodeons made by Messrs. **Geo. A. Prince & Co., Buffalo, N. Y.**, for we know them to be good. A large one in our own Sunday-school room has been there *fourteen* years, and is to-day just as good as when first purchased, though used from time to time by a large number of persons.—Several clergymen have obtained this premium for themselves, their Churches, or Sunday-school rooms. The clubs of subscribers were quickly raised among the members of their parishes.—Many others can get a Melodeon for their home use. Send a postage-stamp to the makers and get their illustrated descriptive circular. These Melodeons will be shipped direct from the manufactory at Buffalo. They can go safely as freight or by express. If an Organ should be wanted instead of a Melodeon, we can supply it for an increased number of subscribers in proportion to the value.

No. 44.—Steinway Piano.—SEVEN OCTAVE ROSEWOOD CASE, SOLID ROSEWOOD DESK, LARGE FRONT, ROUND CORNERS; OVERSTRUNG BASE, FULL IRON FRAME, PATENT AORAPPE TREBLE, CARVED LEGS, AND CARVED LYRE.—This is one of the most elegant Premiums ever offered; regular and only price \$650. That this magnificent instrument comes from the celebrated establishment of Messrs. **Steinway & Sons, Nos. 109 & 111 East 14th St.**, is enough to say; but it is due to these enterprising manufacturers to state that while their pianos have repeatedly received the *First Premiums*, by the award of the most competent judges the world can produce, at the Universal Exposition, in Paris they received the *FIRST GRAND GOLD MEDAL* for American Pianos in all three styles exhibited, viz.: Grand, Square, and Upright. The following official certificate was signed by the President and the five members of the International Jury: "Paris, July 20th, 1867. I certify that the *First Gold Medal* for American Pianos has been unanimously awarded to Messrs. Steinway by the Jury of the International Exhibition. First on the List in Class X." The Society of Fine Arts in Paris unanimously awarded Steinway & Sons their *only* annual Testimonial Medal for 1867. The President of the Musical Department of that Society reports: "The pianos of Messrs. Steinway appear to me, as well as to all the artists who have tried them, superior to all that have been made to this day in the entire world." The best judges in America say the same. We also speak from personal knowledge, as each of our partners has one at home and desires no better. This splendid premium may be secured by many persons. Only 625 subscribers are required to do it. Several have obtained this premium. It will pay for even a year's labor. Classes of young ladies at school might unite in canvassing, and obtain a present for a Teacher, or a Piano for their school-room. We shall be glad to give this premium to a large number. Send to Messrs. **Steinway & Sons, New York City**, for a free circular describing it.

No. 45.—A Good Watch.—The Watches made by the **American Watch Co., Waltham, Mass.**, have peculiarities of excellence which place them above all foreign rivalry. The substitution of machinery for hand labor has been followed not only by greater simplicity, but by a precision in detail, and accuracy and uniformity in their time-keeping qualities, which by the old method of manufacture are unattainable. A smoothness and certainty of movement are secured which proceed from the perfect adaptation of every piece to its place. The extent of the Waltham establishment, the combination of skilled labor with machinery perfect and ample, enable them to offer watches at lower rates than any other manufacturers. Their annual manufacture is said to be double that of all other makers in this country combined, and much larger than the entire manufacture of England. The mechanical improvements and valuable inventions of the last fifteen years, whether home or foreign in their origin, have been brought to their aid, and the presence of nearly 800,000 Waltham Watches in the pockets of the people is the best proof of the public approval. We offer a Silver watch, jeweled, with chronometer balance, warranted by this Company as made of the best materials in the best manner, and in pure coin-silver "hunting" case; weight 3 oz. This watch we offer as one of our Premiums, with the fullest confidence. Upon the movement of each of these watches will be engraved, "AMERICAN AGRICULTURIST. MADE BY THE AMERICAN WATCH CO., WALTHAM, MASS."

No. 46.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 45 above) includes these beautiful gold watches. They are full-jeweled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time-keeper. Upon the movement of each Premium Watch will be engraved "AM. AGRICULTURIST. MADE BY THE AM. WATCH CO., WALTHAM, MASS."

No. 47.—Breech-loading Pocket Rifle.—This remarkable little fire-arm weighs only eleven ounces, yet shoots with great accuracy and power from 30 to 100 yards, or more, and can be loaded and fired five times a minute. It can be carried in a side pocket, and is accompanied by an extension breech, so that it may be used either as a pistol or rifle. It is put up in a neat mahogany case, with 250 rounds of ammunition. The manufacturers are Messrs. **J. Stevens & Co., Chicopee Falls, Mass.**, and the rifles are sold at retail by Messrs. **COOPER, HARRIS & HODGKINS, No. 177 Broadway.** Without the mahogany case, we will give the weapon, all complete, with 100 cartridges, packed in a pasteboard box, on receipt of 19 subscribers, at \$1.50 each.

No. 48.—Double-Barrel Gun; OR FOWLING PIECE.—These guns are the genuine London "Twist" barrel, Patent Breech, Bar Lock, ebony ramrod, and in all respects desirable. Their caliber and length of barrel vary, and may be ordered to suit the kind of shooting to be done. They are furnished for this Premium by Messrs. **COOPER, HARRIS & HODGKINS, 177 Broadway**, well known as one of the most reliable and best houses in their line of business, and they highly recommend this particular gun, and guarantee it in every respect. It is from one of the oldest and most favorably known English manufacturers. The price is not put on in fancy carving and plating for show, but in the gun itself. This Premium includes Gun, Powder-Flask, Shot-Pouch, and Wad-Cutter.

No. 49.—Remington's Sporting Breech-Loading Rifle.—The Rifle offered as this Premium has a 30-inch steel barrel, and can be of any weight from 8 to 12 lbs., and of any caliber from $\frac{22}{100}$ to $\frac{40}{100}$, as may be desired. Ammunition is extra, and at prices varying in accordance with the caliber. These rifles are manufactured by the noted firm of **E. Remington & Sons, Nos. 281 and 283 Broadway, New York**, whose reputation is world-wide, and who stand in the front rank of manufacturers of fire-arms.

No. 50.—Remington's Single-Barrel, Muzzle-loading Shot-Gun, IMPROVED.—This very serviceable, low-priced gun has gained a wide reputation, and we doubt not that many of our boy-readers, who are old enough to handle a gun, will be glad to secure one. It is of good material and fine workmanship, and by the same makers as No. 49.

No. 51.—Chas. Pratt & Co's Astral Oil supplies a great Public Want for a Safe, Reliable Illuminating Oil. It is manufactured by him and packed only in the Guarantee Patent Cans, expressly for FAMILY USE. It has more body, and an equal quantity will burn longer and give more light than other oils. The constant recurrence of explosions, fires, devastation, and death resulting from the use of what is called Kerosene Oil—but really a mixture of Benzine, Naphtha, and other highly inflammable substances, the use or sale of which is an infringement of United States Law—has induced us to place this article on our premium-list as a humanitarian as well as a useful act. The Board of Health of the city of New York have examined scores of samples of Oil obtained from as many different dealers in this city, and nearly all have been found far below the Government standard and entirely unfit for use. This "Astral Oil" is from the House of **Chas. Pratt & Co., 108 Fulton St.** Mr. P., a merchant of high reputation, will keep up the article to its present standard. It has been tested, and fully endorsed by the highest scientific authorities in the land. The Guarantee Cans are made of tin, and sealed so that none of the oil can be removed without breaking the seal, thus securing safety in transportation. The can is inclosed in a strong wooden case, and may be returned for refilling. For 17 subscribers at \$1.50, or 54 at \$1.00, we will send a case containing 12 one-gallon Guarantee Cans of Oil, which may be distributed among a club.

No. 52.—Comstock's Horticultural Implements Combined.—HAND CULTIVATOR AND ONION-WEEDER, SEED-SOWER AND STRAW-BERRY-RUNNER CUTTER.—These implements have given such satisfaction the four years we have offered them as Premiums that we continue them on our Premium-list, and recommend them as very complete contrivances for hand cultivation. The same frame, wheel, and handles answer for all the combinations. The changes for each kind of work can be made in a few

minutes, and every implement works as well as if made specially for the purpose. With any of them one man can accomplish with ease as much as half a dozen men with common tools, and do better work. The price of the Hand Cultivator and Weeder is \$9.00 (see our Premium in the Table); with Seed-Sower combined \$15.00, which we will give for 22 subscribers at \$1.50 or 75 at \$1. The following are extra attachments for the Cultivator and Weeder, which may be secured by sending us, in addition to the above, the same number of subscriptions required for any other Premium of same cost: Strawberry Cutter, \$3.00; pair of Half-share Teeth, \$1.00; set of Shovel Plows, \$2.00; Mole Plow, \$1.00; a *Verge-Cutter* for cutting and cleaning the turf edges of walks and borders, an exceedingly valuable invention, \$1.50; *Scuffle Hoe*, for scraping walks and alleys, \$1.50. Manufactured by **Comstock Brothers, East Hartford, Ct.**, who furnish descriptive circulars to all applicants.

No. 53.—Family Scales.—These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. They weigh from $\frac{1}{2}$ ounce to 240 lbs. They have a scoop, or pan, for weighing flour, sugar, or other house stores, and a platform for heavier articles, and are just such an apparatus as is needed for in-door or out-door use, occupying less than 2 feet square. These scales are manufactured by the well-known **Fairbanks & Co., No. 252 Broadway, New York**, whose weighing apparatus has long ranked as the standard in all parts of the country. Send to them for circulars, if desired.

No. 54.—The Great Dictionary.—WORCESTER'S LARGE PICTORIAL UNABRIDGED EDITION, containing 1854 three-column pages, with a multitude of illustrative engravings. (The work is a large quarto volume.) Most of the thoroughly educated men of the country consider this as by far the best Dictionary in the English Language. It gives the spelling and pronunciation of every word in the language with full explanations, and as a source of general information stands next to a Cyclopædia. The Dictionary can be called for at our office, or be sent by express or otherwise to any part of the country. It should be in every family. It is published by **Brewer & Tileston, Boston**.

Nos. 55 to 63.—Volumes of the American Agriculturist (Unbound).—These amount to a large and valuable library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is \$1.50 each, at the Office, or \$1.75 if sent by mail, as they must be post-paid.—They are profusely illustrated, the engravings used in them having alone cost at least \$100,000. Those obtaining premiums for less than sixteen volumes can select any volumes desired, from XVI to XXXII inclusive. For ordinary use, the sets of numbers unbound will answer.

Nos. 64 to 73.—Bound Volumes of the Agriculturist.—These are the same as Nos. 50 to 58 above, but are neatly bound in uniform style, and cost us more for binding and postage. Sent post-paid.

No. 74.—Farmer's Boy's Library.—A few dollars' worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to make their heads help their hands. One such book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. Any smart boy can easily secure this Premium, and he will have two sterling works by a well-known, practical farmer. They are Allen's New American Farm Book, and Allen's American Cattle.

No. 75.—Farmer's Boy's Library.—Both the books in No. 74, and also Herbert's Hints to Horsekeepers and Henderson's Gardening for Profit.

No. 76.—Farmer's Boy's Library.—The four books in No. 75, with the addition of Fuller's Strawberry Culture, Gregory on Squashes, Brill's Farm Gardening, and Hurren on the Pig.

No. 77.—Farmer's Boy's Library.—The eight books in No. 76, with the addition of Thomas's Farm Implements, Tim Bunker Papers, and Waring's Draining for Profit.

No. 78.—Farmer's Boy's Library.—The eleven books in No. 77, with the addition of Fuller's Grape Cultivist, Breck's New Book of Flowers, and Hunter and Trapper—in all 14 fine volumes.

Nos. 79, 80.—Bound Volumes of Hearth and Home.—These volumes are neatly and uniformly bound in cloth, with title in gilt on back and side. With their beautiful engravings, and abundance of useful and entertaining reading for all the mem-

bers of a family, they will prove valuable additions to any library.

Nos. 81 to 92.—Good Libraries.—In these premiums, we offer a choice of Books for the Farm, Garden, and Household. The person entitled to any one of the premiums 81 to 92 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded, Post or Express paid. Let the farmers of a neighborhood unite their efforts, and through these premiums get an agricultural library for general use. See Table List of Books in advertising columns.

No. 93.—General Book Premium.—Any one sending 25 or more names, may select books from our list to the amount of 10 cents for each subscriber sent at \$1; or 30 cents for each name sent at \$1.20; or 60 cents for each name at \$1.50. This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through, by us. See List as in No. 81.

THE BECKWITH SEWING-MACHINE IMPROVED. PRICE, \$12.

With New Braiding-Foot and other
Valuable Improvements.

We have been offering as a Premium, for a year past, the

Beckwith Sewing-Machine,

which was fully described in the *American Agriculturist* for March and April, 1872. We have already given and sold more than one thousand of these machines, and testimonials of satisfaction have come from every quarter.

We now offer the **Beckwith Sewing-Machine, Improved**, price \$12. A new and very simple braiding-foot has been made, by which a child can sew on braid without the least trouble, following any desired pattern with ease; also a new arm, spiral spring and lever for raising the presser-foot, all of which are now set in a position that leaves the needle free to be threaded. The joint is much enlarged, and the machine is otherwise greatly strengthened and improved. The use of the braider-foot alone will be valued more than the cost of the machine. This, with the other improvements, is considered so important, that the Beckwith Sewing-Machine Company will make no more of the \$10 style.

Read what the People Say.

Hundreds of letters have been received by us and by the Beckwith Sewing Machine Co., extracts from a few of which are given below. Some of them were written with reference to the \$10 Machine, but are appropriate to the Improved Machine, as that comprises all the excellencies of the former, with the additions already noted.

WAYNESVILLE, OHIO, June 10, 1873.

SIRS: I received the sewing-machine in due time. I am perfectly delighted with it. I have used it on all kinds of goods. It gives entire satisfaction.

Mrs. EMMA CARDER.

PLYMOUTH, Wis., Jan. 29th, 1873.

DEAR SIR: I have had the Machine nearly a year, I think, and this is the only accident (breaking one needle) that has occurred to it. I have used it a great deal, and like it very much.

Yours respectfully,

Mrs. S. C. WILLEY.

LACLEDE, Mo., Jan., 1873.

DEAR SIRS: Please send amount inclosed in No. 1 and 2 needles for Beckwith \$10 Sewing-Machine. The little thing works like a charm.

Truly yours,

S. A. HENLEY.

CHURCHVILLE, Va., Feb. 23d, 1873.

GENTLEMEN: The three Machines came safely to hand, and I have sold two of them to my nearest neighbors, who are much pleased with them.

Yours, etc.,

J. H. HEIZER.

LYLERSTOWN, Pa., Feb. 13th, 1873.

GENTLEMEN: The Machine works with perfect satisfaction to all. I am young, and never sewed on a machine until I got the Beckwith, but by closely following directions on the lid of the box, I got along without any trouble.

A. F. HOOVER.

CLINTON HOLLOW, N. Y., Feb. 9th, 1873.

GENTLEMEN: I received the Improved Beckwith Sewing-Machine yesterday. Words will fail to express my admiration of it. I had never seen one—never used any machine much—and had not the slightest trouble in immediately sewing with yours.

Truly yours,

A. F. COOKINHAM.

NEWPORT, October 10th, 1872.

GENTLEMEN: The Machine I bought of you September 21st gives great satisfaction. Wife says she would not give it for a \$100 machine, it is so nice and handy.

Respectfully,

CHARLES ALMY.

We have contracted with the Beckwith Sewing Machine Company for a large number of them to supply our own friends, and as *premiums*. Each machine is put in a neat, compact box, with *hemmer and guide, oil-can with oil, thread, different-sized needles, etc.*, with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$12. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or herself, or for any friend, of one copy of *Hearth and Home* for six months, or one copy of the *AMERICAN AGRICULTURIST* for one year, to those persons who send us \$12 for one of the machines while this offer is continued.

The New Sewing Machine as a PREMIUM without Money.

To enable those to get this machine who can not raise even the \$12 to buy it, we make the following offer:

We will give the Machine to any one who will collect and forward EIGHT subscribers for **HEARTH AND HOME** one year at \$3 each; or SIXTEEN subscribers to **AMERICAN AGRICULTURIST** for one year, at \$1.50 each, expressage on the Machine to be paid by the recipient of it.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Address

ORANGE JUDD COMPANY, 245 Broadway, N. Y.

THE BECKWITH PORTABLE Family Sewing-Machine. PRICE \$20.

Enlarged and Improved.

ITS WEIGHT IS 7 POUNDS.

We have been offering for a year past

The Beckwith Sewing - Machines,

both the original \$10 Machine and the \$12 Improved, as Premiums, and in that time have disposed of hundreds of them, which have given almost universal satisfaction, and elicited multitudes of testimonials of delight from the recipients. While we continue the offer of the Improved \$12 Machine as heretofore, we now offer the new

Portable Family Machine,

price \$20, which comprises all the excellencies of the former, with many valuable improvements. Its size and power are increased, and its capacity thus very much enlarged, without impairing its portability. There have been added cam and eccentric movement, a balance-wheel, and also an oscillating needle-clamp, by which the length of stitch can with the greatest ease be changed to the finest shade of variation without touching the needle.

We will give one of these \$20 Machines to any one who will collect and forward to us Thirty subscribers to *American Agriculturist* at \$1.50 each, or One Hundred at \$1 each, expressage on the Machine to be paid by the recipient of it.

To any one sending us \$20, we will send one of the Machines (packed in a neat, portable case, with handle to carry it easily), expressage to be paid by purchaser. If, after having the Machine 90 days, and giving it a fair trial, it does not give satisfaction, upon the return of the Machine, express charges paid, we will refund the \$20.

ORANGE JUDD COMPANY,

245 BROADWAY, NEW YORK.



SALT CREEK, AT ASHLAND, NEB.,—LOOKING TOWARD THE PLATTE HILLS, FROM THE MILL HILL.

IOWA AND NEBRASKA LANDS.

What Time in the Year is it Best to Buy Them?

THE BURLINGTON AND MISSOURI RIVER RAILROAD

Advertise that "Products will pay for Land and Improvements several times over within their credit of ten years, with nothing to pay for four years but six per cent annual interest." Proceeds of crops are sometimes necessary and always convenient for paying this interest and annual installments of principal after the fourth year as they accrue; hence it is wise to buy at such a time that all payments will fall due after harvest, on the heels of which the pork and beef crop follows. Delays of payment, asked for and granted, are generally "all after harvest."

These facts show that September, October, November, and December are the months most convenient for annual payments to mature; hence buying land "after harvest" is the best arrangement for ten prospective annual payments. Autumn is also the best season to "make a good ready" for next season's crop, such as selecting land, building a house, digging or boring a well, buying a wagon, team, plows, stock, etc., at best rates. Many wish to buy land, but can not come in person to do so before coming with their families. Such can write and specify the kind, location, quality; whether level or rolling prairie, or valley and timber land, with running water; distance to Railroad station, market, etc.

The first payment of six per cent on the value of the land wanted can be remitted by Bank draft on Boston, New York, or Chicago, payable to order of GEO. S. HARRIS, Land Commissioner.

Prices range generally from three to ten dollars, averaging about six, though some lands are sold at one and two dollars per acre. On receipt of written application and funds, the best selection will be made that can be at price specified, and if on examination within one year the land thus bought is not satisfactory to the buyer, he can exchange it for any other land of equal value for the same price.

Nebraska Lands bought in 1870—1871 are entitled to a credit of twenty per cent premium, if one half of it is improved and cultivated within two years from date of purchase.

A Deduction of 1, 3, or 10 per cent is made from long credit price in Iowa and Nebraska for full payment in one, two, or three years from date of purchase. Our gratuities, low prices, long credits, small annual payments, great products, and good markets enable every enterprising man to get a good farm and home in a rich, healthy, and beautiful country. Circulars giving full particulars, and in any quantity wanted, are supplied gratis.

A SECTIONAL MAP, on a large scale, showing the exact location of the Lands in Iowa, is sold at 50 cents, and a similar map of Nebraska Lands is sold at same price.

LAND BUYERS, in order to realize all the benefits we offer, should buy Land Exploring Tickets, via Burlington route, of W. D. Cowles, Agent, 317 Broadway, New York; W. H. Wisner, Agent, 59 Clark Street, Chicago, Ill.; or at C. B. & Q. R.R. Offices in Peoria, Mendota, Galesburg, Quincy, Ill. Or apply to

GEO. S. HARRIS, Land Commissioner, for Iowa Lands, at Burlington, Iowa; or for Nebraska Lands at Lincoln, Nebraska.

Atchison, Topeka & Santa Fe
RAILROAD.THREE MILLION ACRES
LANDS.

LIBERAL TERMS to IMPROVERS.

11 Years' Credit, 7 per Cent Interest.

No Part of the Principal payable for Four Years.

FINE GRAIN-GROWING REGION.

Tracts of one and two thousand acres available for Neighborhood Colonies, or for Stock Farms.

Excellent Climate, with Pure Flowing Water.

"I would say, that in the course of many years, and through extensive travel, I have not seen a more inviting country, nor one which offers greater inducements, with fewer objections to settlement, than these lands of the A. T. & S. F. R.R."—Extract Report of Henry Stewart, Agricultural Editor American Agriculturist.

For full particulars inquire of

A. E. TOUZALIN,
Land Commissioner, TOPEKA, KAN.

FOR SALE. IMPROVED

and unimproved Farming lands in the richest and best settled portion of Missouri. Will be sold on favorable terms, or a portion would be exchanged for real estate in or near New York City. For particulars, address
S. F. JOHNSON, 15 New St., New York.

WANTED—A HILL-SIDE FARM
of 100 acres to hire for one or more years.
Address H. P. Herald Office, Boston, Mass.

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Additional Fair List.

The list here given is a supplement to the one published in September. For October fairs not mentioned here see the list given last month.

District Fairs.

Colorado Indust. Assoc. Denver	Sept. 20-Oct. 4
Shenandoah Valley Winchester, Va.	Sept. 29-Oct. 7
Texas Middle Corsicana	Sept. 30-Oct. 3

Industrial Fairs.

Louisville Industrial Louisville, Ky.	Sept. 2-Oct. 11
Tenn. A. and M. Assoc. Nashville	Sept. 29-Oct. 10

Provincial Fairs.

Canada, Blenheim	Plattsville	Oct. 3
Nova Scotia	Halifax	Oct. 1-8
Yarmouth	Yarmouth	Oct. 2
P. E. I. Queens Co.	Charlottetown	Oct. 7-8

County Fairs.

ALABAMA.

Madison Co.	Huntsville	Oct. 7-11
Wilcox Co.	Camden	Nov. 4-8
Williamson Co.	Franklin	Oct. 1-4

INDIANA.

Wayne	Orreville	Oct. 15-17
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IOWA.

Allamakee Co.	Waukon	Oct. 1-2
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KANSAS.

Allen	Iola	Oct. 8
Jefferson	Oskaloosa	Oct. 7-9
Johnson	Olathe	Sept. 30-Oct. 3
Labette	Oswego	Oct. 9-11
Leavenworth	Leavenworth	Sept. 29-Oct. 4
Miami	Paoli	Oct. 1-4
Mitchell	Beloit	Oct. 16
Montgomery	Independence	Oct. 1-3
Riley	Manhattan	Sept. 30-Oct. 3
Wilson	Fredonia	Oct. 1
Woodson	Neosho Falls	Oct. 1-3

MARYLAND.

Frederick Co.	Frederick	Oct. 14-17
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MICHIGAN.

Hillsdale	Hillsdale	Oct. 7-10
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MINNESOTA.

Blue Earth Co.	Garden City	Oct. 2-4
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MISSISSIPPI.

Adams Co.	Natchez	Nov. 13-23
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MISSOURI.

Livingston Co.	Chillicothe	Oct. 7-10
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NEW JERSEY.

Warren Co.	Belvidere	Sept. 30-Oct. 3
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NEW YORK.

Rockland Co.	New City	Oct. 1-2
Yates Co.	Dundee	Oct. 8-10
Yates Co.	Penn Yan	Sept. 30-Oct. 2

NORTH CAROLINA.

Grenville Co.	Henderson	Oct. 7-9
Hallifax Co.	Weldon	Oct. 23-31
New Hanover Co.	Wilmington	Nov. 11-14

PENNSYLVANIA.

Union Co.	Millburg	Oct. 8-11
Westmoreland Co.	Greensburg	Oct. 7-10

SOUTH CAROLINA.

Darlington Co.	Darlington	Oct. 8-10
Greenville A. & M. Assoc.	Greenville	Nov. 4-8
Peedee	Cheraw	Oct. 15-17

TENNESSEE.

Putnam	Cookeville	Sept. 30-Oct. 3
Sumner	Gallatin	Oct. 15-18
Tipton	Covington	Oct. 21-25
Washington	Jonesboro	Oct. 1-3
Weakley	Dresden	Oct. 1-4
Western	Jackson	Oct. 23-Nov. 2

VERMONT.

Rutland	Rutland	Oct. 1
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WISCONSIN.

Crawford Co.	Seneca	Oct. 1-3
Waukesha Co.	Waukesha	Oct. 7-9

The Great Campbell, Duchess Sale.

When it was announced some months ago that Mr. Samuel Campbell, who had but a year before become sole proprietor of the finest herd of Shorthorn cattle in the world, proposed to offer them all at public auction, it was well known to all interested in such things that the occasion would be a most memorable one. The "Duchess" blood (known also as the "Bates" blood, from the name of the original breeder, Mr. Thomas Bates, of Kirkcaldy, in Yorkshire, England), gave the herd its character and value. Our American breeders, particularly Messrs. Morris & Becar, Jonathan Thorne and his son Samuel Thorne, had as long ago as 1830 to 1835 made purchases of the "Bates" stock, which placed on this side of the Atlantic the very choicest blood of the best English herds. Here it has been maintained in purity, and more or less successfully bred for twenty years. In 1857 Col. Morris, then sole proprietor of the Morris & Becar herd, sold all (some fifty animals) to Mr. Samuel Thorne, thus placing the Duchess cows and their female progeny all in the hands of one proprietor. Mr. Thorne's purchases in England were made

with great discrimination and boldness; and though losing valuable cows by accident on the passage, having his one thousand guinea bull prove worthless, and losing besides by lightning—his undaunted pluck as a buyer, and the great prices paid, gave his herd a reputation second to none in the world. In May of 1861 Mr. Thorne sent young bulls of his herd to England, where they met with quick sale at high figures. From that day to this there have been not infrequent purchases from one best American herds for exportation, at constantly increasing prices.

Mr. Thorne parted with his entire herd to Mr. Jas. O. Sheldon, of Geneva, in 1867, who, after successfully breeding it for some years, and adding to it by notable purchases and importations, sold the herd to Messrs. Walcott & Campbell, the wealthy proprietors of the New York Mills cotton factories, and of about one thousand acres of most fertile and beautiful farming lands surrounding them, and extending for some miles along the Sequoia creek and upon the so-called Mohawk flats, near Utica.

The sale took place on the 10th of September, at New York Mills, near Utica, New York. The cattle had been for some days in the roomy stables in the rear of the great factory, and every opportunity for examination afforded to the breeders and visitors, who came from great distances to attend the sale. A varied and excellent lunch was spread on Tuesday and on Wednesday, both days being as nearly perfect as could be. As the hour approached, a great throng of persons collected, numbering fully five hundred, of whom nearly half were directly or indirectly interested in the breeding of shorthorns. Kentucky was there in full force, her sons most of them standing head and shoulders above the crowd; Illinois, Ohio, Michigan, Minnesota were well represented, and so were New England and the Canadas, while almost every breeder of the state of New York was present, as of course. Lord Skelmersdale, of Latham House near Liverpool; Mr. Holford, of Papillon Market, Hallow; Mr. Berwick, agent of Lord Dunmore, but present to buy for Earl Beattie; Mr. Richardson, agent for Sir Curtis Sampson; Mr. Kello, agent for Mr. R. Pavin Davis, were present as buyers from England; and Mr. De la Perrell, the well-known purchaser and shipper of live stock, from Liverpool, attended to superintend the shipping of the stock purchased by Lord Skelmersdale.

THE SALE.—The Duchess cows and heifers offered were eleven in number, not including two, the 15th Duchess of Geneva, past three years old and suspected of not being a breeder, which by vote of those present, at his own request, Mr. Campbell was permitted to withdraw; and the 8th Duchess of Thorndale, 11 years old and past breeding. The Duke bulls were only three, namely: the 2d, 4th, and 7th Dukes of Oneida.

The first animal offered was the 2d Duke of Oneida, a noble three year old, by 4th Duke of Geneva (7,931) out of 13th Duchess of Thorndale. Lord Skelmersdale's first bid of \$10,000 roused everybody. There were but three bids offered, \$11,000 and \$12,000, at which sum he was taken by Mr. T. J. Megibben of Kentucky. Then the Duchess cows and heifers were brought one by one into the ring, and the bids upon them started at frequently \$5,000, sometimes at \$3,000 or less, and usually advanced \$1,000 at a bid to near the last; but sometimes, as in the case of 8th Duchess of Geneva, \$5,000 bids followed each other in quick succession. The bidding, as we noted it upon this superb cow, was about as follows: Starting at \$3,000 it advanced thus: "\$4,000," "\$5,000," "\$6,000," "\$7,000," "\$8,000," then \$10,000, "\$12,000," "\$15,000," "\$20,000," "\$25,000," "\$30,000," then by \$1,000 bids to \$37,000, "\$37,500," "\$38,000," "\$38,500," "\$39,000," "\$40,000," "\$40,100," and so on to \$40,600, at which sum she went to Mr. R. Pavin Davis of Gloucestershire, being about three times as much as was ever before paid for a single animal of any bovine race. A six months' heifer calf of this cow subsequently sold for \$27,000 to Mr. A. J. Alexander, of Kentucky. We give below briefly the prices at which the cows and bulls of the Duchess family sold, and a general summary of the other sales.

1st Duchess of Oneida, red and white; calved January 24, 1870; got by 10th Duke of Thorndale (23,458). Served December 10 by 2d Duke of Oneida. Sold to Lord Skelmersdale for \$50,600.

7th Duchess of Oneida, red and white; calved August 3, 1872; got by 2d Duke of Oneida (9,926). Sold to Mr. A. J. Alexander, of Kentucky, for \$19,000.

10th Duchess of Geneva, roan; calved May 15, 1867; got by 2d Duke of Geneva (23,752). Dam 5th Duchess of Geneva by Grand Duke of Oxford (16,134). Served March 20 by 2d Duke of Oneida. Sold to the Earl of Beattie for \$33,600.

8th Duchess of Oneida, roan; calved November 18, 1872; got by 4th Duke of Geneva (7,931). Sold to Lord Beattie for \$15,200.

13th Duchess of Thorndale, red; calved February 25, 1867; got by 10th Duke of Thorndale (23,458). Served

July 8 by 4th Duke of Oneida. Sold to Mr. A. B. Conger, of New York, for \$15,000.

4th Duchess of Oneida, red; calved January 17, 1872; got by 4th Duke of Geneva (7,931). Sold to Messrs. Bedford & Megibben, of Kentucky, for \$25,000.

8th Duchess of Geneva, red and white; calved July 23, 1866; got by 3d Lord Oxford (22,800). Served June 1 by 2d Duke of Oneida. Sold to Mr. R. Pavin Davis, of Gloucestershire, Eng., for \$40,600.

10th Duchess of Oneida, red and white; calved April 7, 1873; got by 2d Duke of Oneida (9,926). Sold to Mr. A. J. Alexander, of Kentucky, for \$27,000.

9th Duchess of Oneida, roan; calved March 2, 1873; got by 2d Duke of Oneida (9,926). Sold to Mr. Berwick for Lord Beattie for \$10,000.

12th Duchess of Thorndale, roan; calved October 13, 1865; got by 6th Duke of Thorndale (23,794). Served April 17 by 2d Duke of Oneida. Sold to Mr. A. B. Conger for \$5,700.

3d Duchess of Oneida, roan; calved March 19th, 1871; got by 4th Duke of Geneva (7,931). Served July 3 by 4th Duke of Oneida. Sold to Mr. Halford, of England, for \$15,600.

The Bulls of this family sold as follows: 2d Duke of Oneida, to Mr. Megibben for \$12,000. 4th Duke of Oneida to A. B. Cornell, of New York, for \$7,600. 7th Duke of Oneida to A. W. Griswold, of Vermont, for \$4,000. The Duchess Cows above-named sold at an average of \$21,709. The bulls at an average of \$5,725.

The rest of the herd 111 in number included the Ox-fords, numbering seven cows and two bulls, Rosamonds, Lady Bates, Lonans, Lady Knightly, Lady Newhams, and other choice strains closely related to the Duchess and Oxford tribes. The total sum realized for breeding animals was \$380,800—an average of over \$2,431 each.

The interest during the bidding was as intense as can well be imagined, and the fevers of the stock board and gold room, or the reported delirium of the gaming table can hardly surpass the restrained, yet extraordinary excitement which prevailed. That all this was not the result of a phrenzy of the moment is proved by the fact that many of the highest prices were paid by agents acting strictly under orders from their principals.

Thus ended the most remarkable sale of cattle on record. It forms an epoch which will be dated back to as a crisis in the history of well-bred stock as long as neat cattle are bred with care.

SUNDRY HUMBUGS.—Sometimes

—friends ask more of us than we feel at liberty to perform. While we hold it our duty to resist our readers against those who hold out inducements, "the same with intent to deceive," we can not, upon the presentation of one side of a business difficulty, denounce the party of the other side as a swindler. Several cases of this kind have been sent recently, one of which we give

IN ILLUSTRATION.

A gentleman in Iowa writes that he sent \$154 to a stock dealer in Pennsylvania for some pigs, and the dealer writes that the money has not been received. The agent of the American Express Company in Iowa has traced the money through his own company to New York and thence by Adams Express to Pennsylvania, where the agent handed the money to the stock man in person. This is a very straight story, and if the Iowa party has his chain of evidence so complete as would appear, the best thing he can do is to bring a suit against the dealer in pigs. In business transactions of this kind there is a chance that some oversight may be the cause of the trouble. So with a hand-stamp case in Hartford, Conn. Both cases have a suspicious look, but we can not, on the evidence presented, give the suspected parties a place among the humbugs.

A RELIGIOUS PAPER IN CINCINNATI

is complained of by a correspondent in Tennessee for publishing a consumption quack's advertisement. If the Cincinnati paper were the only religious sheet that published objectionable advertisements, it might be well to notice it. Our friend can see but few papers of this kind if he thinks this an exception. In turning to the only two just at hand, we find in both advertisements that should not appear in a religious paper or in any other. In years past we have had much to say on the subject, but the publishers of religious journals are very much like most other publishers when a paying advertisement is in question, and these quack fellows pay liberally. It must grieve the good men who fill the editorial columns to see what stuff goes into families along with their own teachings, and know that many persons think that all this quackery is in a manner sanctioned by them. We know of one editor of a religious paper who resigned his position on account of the publisher's course in the business columns, but such cases are unfortunately rare.

"\$2,000 PER YEAR AND A FIRST-CLASS PIANO free to every lady or gentleman" who sells the goods of

the Eureka Chemical Works, Clayton, Mich. This is a grand offer, the best we have seen lately. Our correspondent at Clayton, though long a resident and the village a small one, does not know where the "Chemical Works" are, and says that the honest men of the place feel disgraced that such a humbugging advertisement should hail from that place.

A LOVE MAGNET.

The days of "love powders" have gone—things are done by electricity now and we have the "love magnet." The Commune in Paris did much evil, and one of the worst of its acts was to drive "Leverrier, the great French chemist, scientist, and electrician," from Paris, as this resulted in his inventing the "Amulet or Love Magnet," which is too terrible a thing to be let loose upon the community. It is to be had in Hoboken for only fifty cents; but we can not give the full address for fear of the consequences that might result should every one purchase a love magnet. Some of the powers it exercises are hardly proper to mention, but we are assured that "Any one using it according to printed instructions can have full and perfect control over any person they choose—the weaker over the stronger, and *vice-versa*." And all for 50 cents, or five for \$2.

RENDERING KEROSENE NON-EXPLOSIVE.

Several have inquired about the "American Safety Compound," which claims to be "For rendering kerosene oil and all other kinds of burning oils and fluids entirely non-explosive and safe"—a claim which is absurd upon the face of it. The only attempt to support the improbable assertion is that of "Professor Hamilton, of the National Institute of Chemistry, New York city." We learn here for the first time that there is a "National Institute" in New York; and as for "Professor G. Hamilton," the name of no such person as "professor" or chemist appears in the City Directory. It is a suspicion that this "Safety Compound, a small quantity of which put into a lamp drives out from the oil all the gaseous vapor which it contains and at once renders it perfectly and entirely safe from all combustion(?) or explosion," should not be certified to by some well-known chemist.

QUACK MEDICINES

Seem to be starting into life with the fall trade, and though but few new styles are offered, the old chaps are scattering their circulars, and warning people all over the country that unless their particular stuff is taken there is no hope of health or life. Our large collection of this quack medicine literature would be most amusing reading were it not for the sad reflection it is upon the intelligence of the people. The ingenuity displayed in working upon the feelings of the reader and gradually leading him up to the point where, if he be weak-minded, he must decide to take this stuff or die, is truly wonderful. Not less ingenious are the various inventions to account for the discovery of the medicines; in one case it is Old Mother Noble who confers a boon upon the world; the next will be discovered by a hermit among the Colorado mines; beloved Father Apply accidentally chews the leaves of a bush and discovers his stuff; then Sweet Eddie Eastman gets among the Indians and gets his stuff, etc., etc. There are adventures enough in these circulars to make several "dime novels" of the most harrowing kind. But these are commonplace compared to the manner of the discovery of the Electric Health Restorer. This, as a medicine should be, was found in a bottle. Israel Goodspeed had all his family killed by cholera, so he became a wanderer. He went to England and became a gypsy, and one day while upon the beach he found a bottle drifting ashore which he picked up. There was a paper in the bottle which was written by Carl Bierckhoven, of Berlin; the ship in which he sailed was sinking, he wrote out a description of his remedy, corked it up, Israel found it, and the rest we can imagine. This is an outline, but the full picture is touching.

MONEY SWINDLES.

If after what we have said about jewelry and watch distributions, or if any one thinks he can get a useful watch for \$4, or that he can get any valuable thing whatever for much less than it is worth, he deserves to lose his money....Do not believe any extracts or apparent indorsements of New York papers attached to watch and other distributions. A Canada paper publishes a complaint of one who was swindled by one of these watch distributions, but continues the advertisement and very innocently remarks that "it is advisable to suspend judgment.".....The drawing of the "Colorado Gift Entertainment" is postponed. We have before alluded to the shame of mayors, bishops, and others indorsing this bare-faced lottery. Great quantities of the circulars are sent into New Mexico and Northern Mexico, where the population is mainly Catholic, and who are doubtless influenced to invest by what we trust is the

unwarranted use of the names of the clergy of that denomination.

DEALERS IN QUEER

are many of them out with new circulars for the fall trade. Truman H. Sause *alias* Herman Koonz, gets his letters personally at the New York Post-office. I. M. Ward & Co. on the other hand say, "Send no communications by mail, as they will not be noticed." James Doty comes the threatening dodge before alluded to. James Doty sends out by a singular coincidence precisely the same circular as A. B. Conrad. Both these excellent engravers who "have been employed by the United States Government for ten years" threaten dire vengeance upon those who receive their circulars and afterwards betray their secret.

Fashions Opening!

From Smith's Illustrated Pattern Bazaar.



1360—THE REDINGOTE—FANED for beautifying any style of figure. Is a complete costume with any kind of skirt. Double-breasted and rolling-collar. Requires only eight yards of twenty-seven-inch goods. All sizes. Price of pattern, with a CLOTH MODEL, 50 cts. Mailed. We give a perfect CLOTH MODEL with every pattern, which shows just how to put the garment together after being cut by the pattern. They are PERFECT GUIDES.

Immense Premiums Given!
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PREMIUM to every subscriber of patterns of their selection to the value of **One Dollar, Free, Off, in place of Patterns**, you may choose **ONE** of the following beautiful **Oil Chromos**, viz.: **WHITTIER'S "BARFOOT BOY,"** 10x14 inches; **"THE UNWELCOME VISITOR,"** 13x17 inches; **"THE MATRON,"** 13x17 inches; **"THE PET LAMB,"** 14x17 inches. Two stamps must be enclosed for postage on each chromo. These pictures can be had ready for from \$1 to \$3 each. Send two stamps for Catalogue of Styles. **CLUB.**—One Chromo Extra will be given to the person who sends us three subscribers at one time. **Two extra for five**, etc.

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PARIS, 1867.]

[VIENNA, 1873.

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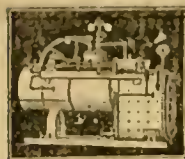
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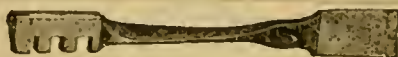
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bolt tables, wages, rent, board, capacity of cisterns, cord-
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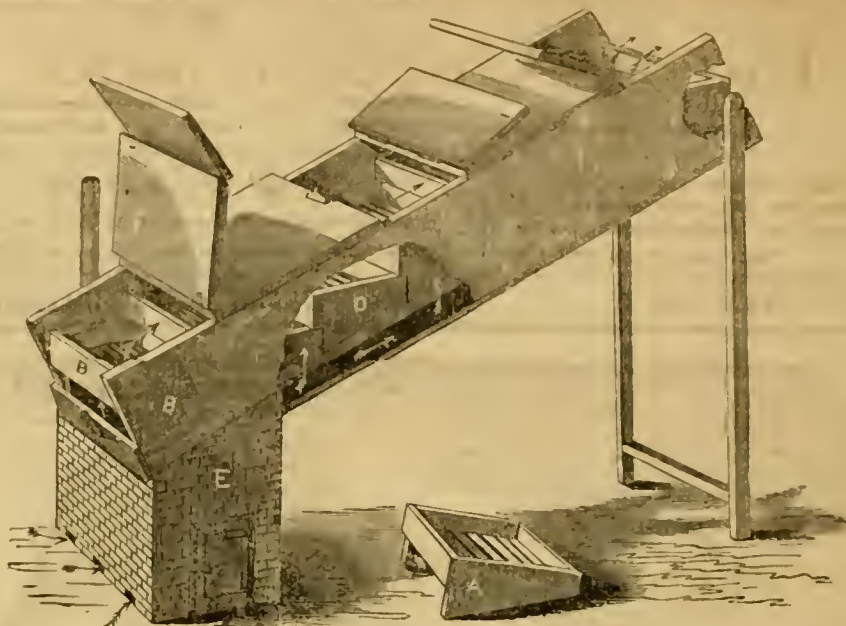


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rapidly extending wherever it is known.

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Surplus fruit of every kind, and also that which from over-ripeness or inferior size or quality is unfit
for marketing in the unprepared state, can all be converted into a marketable commodity, which from
its excellence will command the highest price. Such fruit as is prepared by this means is now selling
in this city at an average of fifty per cent more than ordinary dried fruit.

NO MORE CANS NEEDED.

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canning process was a great advance on the old-fashioned "pound-for-pound" way of making preserves,
but in the necessary steaming process there is loss of valuable constituents of the fruit, much of which
is avoided by the new method. More than this, experiment proves that by this latter process the fruit
is increased in sweetness by the change of its starch into glucose or fruit-sugar. In other words, while
passing through the Drier it is ripened more fully. Fruit so prepared requires one quarter to one third
less sugar to prepare it for the table than is needed for canned fruit. Other manifest advantages over
the canning system are: **Less Trouble in Operating; Certainty of Keeping; No
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carpenter can make it, and any ordinary laborer operate it. Its capacity can be adapted to small or large
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can prepare the fruit. The cost is so moderate, that every farmer can profitably buy it to save the
surplus product of his orchard or fruit-yard.

Having formed a company under the name and style of the **AMERICAN DRIER COMPANY**, we are
prepared to furnish DRIERS to agents and others in the United States for the season of 1873, in three
different sizes, viz.:

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- No. 2, 30 inches wide and 14 feet long, \$35.00.
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The above are the factory prices, all complete except stove—delivered at the freight or express
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drying as fast as two hands can hand-prepare and cut the fruit.

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work, ranging in price from \$100 to \$500.

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nished to order; prices according to size, style, and finish.

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bination of principles embraced in the **AMERICAN DRIER** patent claims. By special mechanical arrange-
ments it may be adapted—on a large scale—to various purposes, such as drying grain, hops, herbs,
chemicals, paper, straw-boards, lumber, and for drying and curing beef, pork, fish, etc., etc.

Agents wanted to introduce and sell the DRIERS, and the rights to make and use them.

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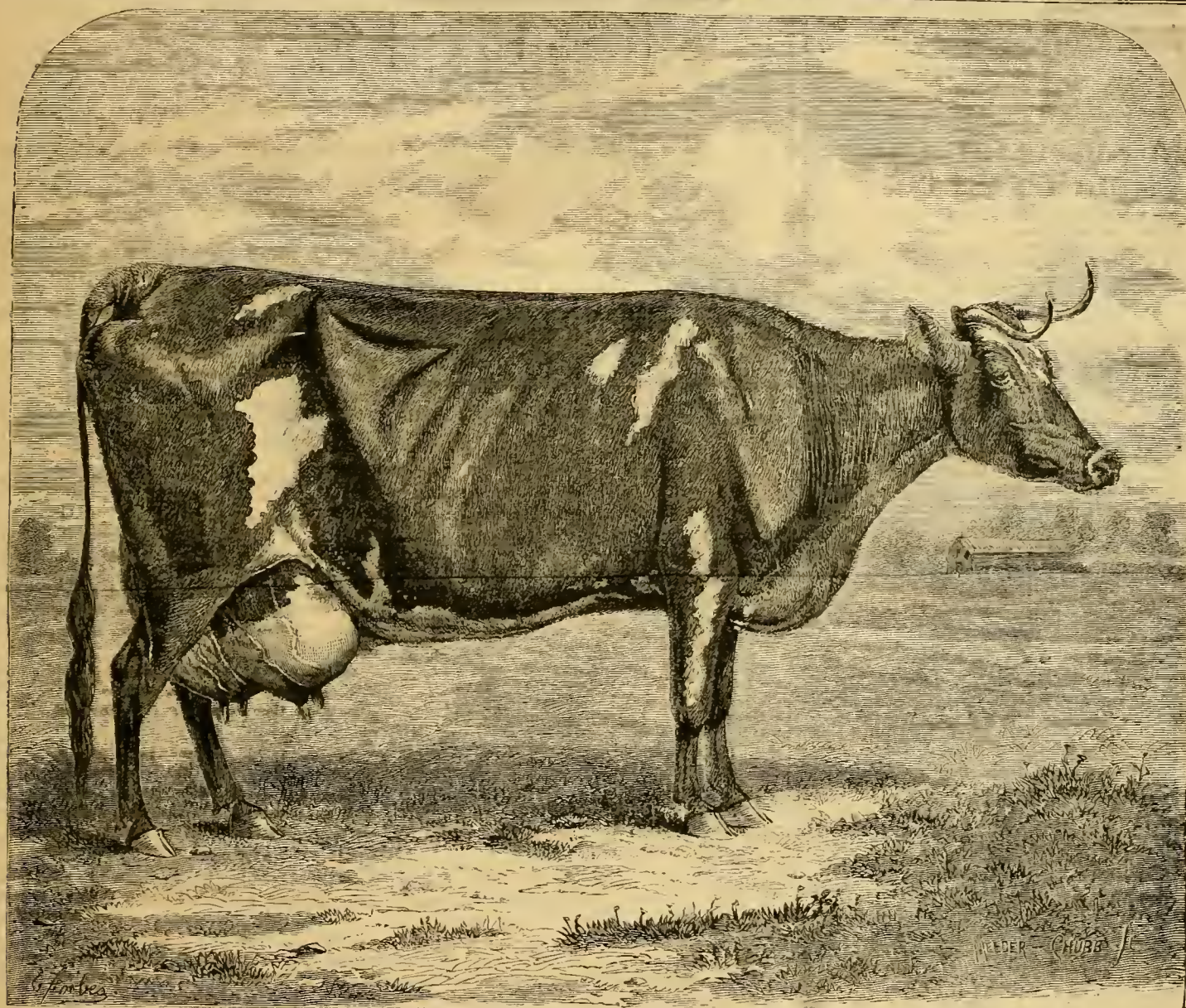
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VOLUME XXXII.—No. 11.

NEW YORK, NOVEMBER, 1873.

NEW SERIES—No. 322.



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AYRSHIRE COW—BEACON BELLE.—Drawn and Engraved for the American Agriculturist.

On a recent visit to Beacon Stock Farm, Northport, L. I., we saw Beacon Belle with her young calf, and being struck with her splendid points as a model cow had her portrait taken for our readers. Those who have been educated to observe the points which characterize the most perfectly formed and richly endowed animal will at first sight recognize the claims of Beacon Belle, while those without any special education in this respect may take this picture as a study of what a good milk cow should be. There is the general wedge shape of the whole body, deep in the hind-quarters

and gradually tapering to a point at the muzzle. There is the fine muzzle; the dished face broad between the eyes, indicating great intelligence; the large, bright, placid eye, denoting gentleness of disposition with activity and vivacity combined therewith; the fine horn, the elegant neck, graceful and deer-like; the well-developed chest, giving abundance of room for the lungs and heart to perform their functions; the straight back; the broad hips and large pelvis, giving ample room for the safe production of well-developed and good-sized calves; a full abdomen, showing abundant digestive capacity

yet without any tendency to deformity or "potbelliness;" the extraordinary development of milk-vein and udder; with the well-placed, full-sized teats, and finally the slender tail, well-tufted and long—all these points combine to make an animal which the experienced man would call perfect, and the inexperienced general observer would immediately declare to be a beautiful one. Beauty, however, is not the great test of the value of a cow. Beacon Belle has been a very profitable cow to her owners, and her history in part will be found recorded in a Basket item in another place.

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Calendar for November.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon.			N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Kentucky, Missouri, and California.		
		Sun. rises.	Sun. sets.	Moon sets.	Sun. rises.	Sun. sets.	Moon sets.	Sun. rises.	Sun. sets.	Moon sets.
1	S	6:33	4:53	2:36	6:30	4:57	2:37	6:27	5:00	2:33
2	M	6:34	4:52	3:53	6:31	4:56	3:53	6:28	4:59	3:53
3	T	6:35	4:51	5:09	6:32	4:55	5:07	6:29	4:58	5:06
4	W	6:36	4:50	6:26	6:33	4:54	6:23	6:30	4:57	6:20
5	T	6:37	4:49	rises	6:34	4:53	rises	6:31	4:56	rises
6	F	6:38	4:47	6:11	6:35	4:51	6:17	6:32	4:55	6:23
7	S	6:39	4:46	6:57	6:36	4:50	7:44	6:33	4:54	7:11
8	M	6:42	4:45	7:54	6:39	4:49	8:11	6:35	4:53	8:08
9	T	6:43	4:44	8:53	6:39	4:48	9:44	6:36	4:52	9:11
10	W	6:44	4:43	10:11	6:40	4:47	10:10	6:37	4:51	10:12
11	T	6:46	4:42	11:44	6:42	4:46	11:08	6:39	4:50	11:13
12	F	6:47	4:41	morn	6:43	4:45	morn	6:40	4:49	morn
13	S	6:48	4:40	0:06	6:44	4:44	0:09	6:41	4:48	0:12
14	M	6:50	4:39	1:08	6:46	4:43	1:08	6:42	4:47	1:10
15	T	6:51	4:38	2:06	6:47	4:42	2:07	6:43	4:46	2:08
16	F	6:52	4:37	3:05	6:48	4:41	3:05	6:44	4:45	3:05
17	S	6:53	4:36	4:04	6:49	4:40	4:04	6:45	4:44	4:04
18	M	6:54	4:35	5:12	6:50	4:40	5:09	6:46	4:44	5:06
19	T	6:55	4:34	sets	6:51	4:39	sets	6:47	4:43	sets
20	W	6:56	4:34	4:51	6:52	4:38	4:57	6:48	4:42	4:53
21	T	6:58	4:33	5:30	6:53	4:38	5:37	6:49	4:42	5:34
22	F	6:59	4:32	6:21	6:54	4:37	6:23	6:50	4:41	6:25
23	S	7:00	4:31	7:21	6:55	4:36	7:31	6:51	4:41	7:38
24	M	7:01	4:30	8:33	6:57	4:36	8:44	6:52	4:41	8:50
25	T	7:02	4:29	9:53	6:58	4:35	9:57	6:53	4:40	10:02
26	F	7:03	4:28	11:08	6:59	4:35	11:11	6:54	4:40	11:15
27	S	7:04	4:27	morn	7:00	4:35	morn	6:55	4:40	morn
28	M	7:05	4:26	0:22	7:01	4:35	0:22	6:56	4:40	0:26
29	T	7:06	4:25	1:36	7:02	4:35	1:36	6:57	4:40	1:37
30	F	7:07	4:24	2:43	7:03	4:34	2:47	6:58	4:39	2:47

PHASES OF THE MOON.

MOON.	BOSTON.	N. YORK.	WASH'N.	CHAS'TON.	CHICAGO.
Full M'n	D. H. N.	H. M.	H. M.	H. M.	H. M.
2d Quart.	11 7 4 ev.	7 52 ev.	7 40 ev.	7 28 ev.	6 58 ev.
New M'n	19 10 52 ev.	10 40 ev.	10 28 ev.	10 16 ev.	9 46 ev.
1st Quart.	27 3 29 m.	3 17 m.	3 5 m.	2 53 m.	2 23 m.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1873.

"Many a man wishes he was a farmer about these times," remarked a distinguished lawyer during the recent financial panic.

"No doubt about that," replied a prominent banker.

Only a few weeks ago one of these men, himself a farmer's son, spent some time on our farm, and from casual remarks that he made it was evident that he congratulated himself that he was not a farmer.

"After all," we observed, "the prosperity of the country depends to a great extent on our agriculture. Bankers and business men will find, sooner or later, that anything which hurts the farmer will hurt them. It is slow work digging money out of the soil, but successful agriculture is the true road to national wealth, and we are in great danger of overlooking this well-established fact."

We shall all suffer more or less from the panic. But the ultimate effect will be beneficial. It will clear the atmosphere. Financial men will realize that farmers, who are getting only from ten to thirty cents a bushel for corn, can not buy railroad bonds.

As the readers of the *American Agriculturist* know, we have repeatedly predicted the present condition of affairs. We regret the loss and suffering. But it is well that we should all occasionally touch bottom, and realize whence our wealth and strength as a nation are derived.

Hints about Work.

Securing the Crops is the most important work of the month. Not a day or hour should be lost.

Potatoes on many farms are still in the ground. Make an effort to get them out at once. Nothing is to be gained by delay. The days are getting shorter and the weather colder and more uncertain. See Hints for last month.

Corn Husking should be pushed vigorously forward. When corn is cheap we can often get it husked "on shares" more economically than any other way. On our own farm we pay five cents for

husking a bushel of ears. If the corn is poor, six cents.

Poor, Soft Corn will scarcely pay for husking. If it is dry enough to keep in a stack or barn, better stow it away stalks and all for feeding out in winter. In this case it is best to bind the corn into sheaves of convenient size to pitch and unload.

Seed Corn, if not already selected, should be secured at once. Good sound corn will be scarce in many sections next spring. It is best preserved by hanging it up in traces.

Corn Stalks should be drawn in as early as possible after the corn is husked. Let them be entirely free from external moisture.

Root Crops should be gathered and stowed away for winter use. Mangels and other beets should be first harvested, as they are most liable to injury from frost.

Turnips may be left in the ground all winter without injury.

Fall Plowing should be continued until stopped by frost.

Wheat may still be top-dressed with manure. Many farmers have found benefit from spreading straw on the exposed parts of their wheat fields.

Harrowing Wheat to kill weeds is well worth trying. It should be done when the ground is dry and on sunny days. It will not hurt the wheat, and while in our own case it did not kill all the weeds it certainly destroys a good many of them.

Surface Drainage should be attended to before the ground freezes.

Underdraining in Winter can be done very economically, but it is necessary to prepare for it beforehand.

Weeds and other Rubbish on the sides of stone walls and ditches can sometimes be burnt to great advantage during dry weather in November.

The Rushes and Coarse Grass on swamp land may be burnt during a high wind. We have greatly improved the quality of the grass on such land by this treatment. Commence the work in the morning so that the fire will be all out before you leave it for the night. It is well to burn the grass near the fences before setting fire to the main body. Have a bunch or two of willows with which to beat out the fire if there is danger of the fences being burnt.

Stones can be drawn to advantage in winter; but it is necessary to loosen them now and place a stone under them to prevent them freezing fast to the earth.

Buildings should be examined and put in repair for winter. It is a good time to paint them.

Implements and Machines that will not be wanted until spring should be washed with petroleum and stowed away for the winter. Petroleum will preserve the wood and keep the iron from rusting.

Manure should be drawn together in a snug pile, and not be left scattered about the yards. It will commence to ferment, and keep on fermenting moderately all winter.

Potato Tops should be drawn to the yards, where they will be useful as an absorbent and make manure.

Leaves and Muck may be gathered for bedding and manure. Stow them away under cover where they can be easily obtained as required.

Fences should be examined and repaired. A nail in time saves nine.

Cellars should be thoroughly cleaned. See that the windows fit snug and that they can be easily opened and shut. Bank up for winter if necessary. Put as few vegetables in the cellar as possible, and see that you have the means for perfect ventilation.

Dry Earth is a capital disinfectant. Put a load or two of earth in barrels or in one corner of the cellar where it can be obtained as wanted in the winter. Should your cellar be damp in the spring this dry earth will be useful to scatter on the floor.

Wood for winter should have been cut and piled months ago; but if you have neglected it go to the

wooda with axe and cross-cut saw and get a supply of the best and dryest down wood or dead trees you can find. Split it and put in piles to dry. Make the piles where it will be convenient to get at them either now or in winter.

Sawdust, where straw is scarce, should be secured for bedding.

Clover-Seed cut and lying in heaps in the field is not injured by frost; but it is well to lose no time in getting it into the barn. Thrash it during frosty weather.

Hay Stacks, if you have now room in the barns, and unless they are well thatched, should be drawn in. If any part is damaged scatter some salt on it and put it separate from the rest.

Animals need special care this month owing to the great changes in the weather. They need plenty of good food, and should be protected from storms.

Horses that are worked should no longer be turned out to pasture. And even those which are doing nothing and which are running in the fields should have access to shelter and be furnished with some dry food, such as straw, hay, stalks, etc.

Grain is now comparatively cheap, and it is poor economy to feed straw and hay alone. With us, hay sells for more than corn-meal. Whatever agricultural writers may say to the contrary, our animals would approve of the plan of selling hay, if need be, and buying corn-meal. We think the animals are right.

Milk-Cows should take on more or less fat at this time. Grass is usually not very abundant or nutritious at this season. Give the cows *all they will eat*, night and morning, of a mixture of one quart of corn-meal to a bushel of chaffed clover hay. If they do not eat more than half a bushel each of the mixture at a meal you may double the proportion of meal to advantage. Moisten the hay and sprinkle the corn-meal upon it and stir until well mixed.

Calves should have abundance of nutritious food, and while they may still be allowed to run out during warm days should be comfortably housed at night.

Sheep will pay well for a little grain every day—say half a pound each. If the pastures are poor feed a little straw or hay. A sheep well *Novembered* is half wintered.

Old and Feeble Sheep should be sold to the butcher. It will not pay to winter them.

Lambs ought to be separated from the rest of the flock and have the run of the best pasture. A little grain, say half a pound per day, and some clover hay will prove very beneficial. Let them be sheltered during storms.

Breeding Ewes should be carefully selected. Reject all that have any defects. Feed liberally. Get a pure-bred ram. Put him with the flock five months before you wish the lambs to come. He should be fed a pound or so of grain per day. The better, in moderation, the ewes are fed at this season the stronger and healthier will be the lambs, and the more of them.

Fattening Pigs should be pushed forward rapidly and sold as soon as fat. Try to make them eat as much as they can digest. Give all the water they will drink. There is no truth in the idea, we think, that if pigs have access to water the pork will be soft. It is not well, however, to mix so much water with the food as to compel them to take more water than they wish. If they have cooked food give them some dry corn as well.

Young Pigs must have warm, dry, and comfortable quarters and the best of food. If the floors of the pens are not tight, dry leaves are better for bedding than straw, as they will more perfectly exclude the cold air.

Work in the Horticultural Departments.

Although November will find most of the crops gathered at the North at least, still there remains enough to busy the gardener. There will be fences,

and buildings and their surroundings will need repairing, and many little things will need putting to rights before snow and frost make their appearance. The season has been with some crops an unfortunate one, while with others a good harvest has been gathered, and it becomes every gardener to see that he plants only those crops which are reasonably certain to make fair returns for the labor.

Orchard and Nursery.

Planting.—Should the ground remain open this month many fruit trees can be set and at a less cost than when the work is done in the spring. Now labor is plenty, and many a man at this season will accept a job at smaller wages than would be demanded in the spring. Do not, however, set trees in a wet or partly frozen soil; they will be likely to perish. Better occupy the time in cutting drains and preparing the soil properly. Trees not set out this fall must be heeled-in on a dry sandy soil where there is no danger of water settling during the winter.

Fruit.—Any remaining ungathered should be harvested at once and placed where the temperature is as low as possible without danger of frost. Apples gathered late, stored in barrels and placed in a low temperature, will keep a long time.

Cider.—Continue to make cider from the late varieties of apples, using only those which are free from rot. Cider made at this season, strained through sand to remove all pomace and impurities, may be barreled at once, and little or no fermentation will take place if kept cool. This makes a very fine quality of cider for use during the winter, as it remains sweet a long time. The barrel should be bunged up as soon as the cider is put into it.

Vinegar.—All cider from inferior fruit should be made into vinegar. Keep the vinegar barrels open, and from time to time add cider, and in a few months or years, according to the temperature, good vinegar will be the result.

Stocks.—Take up stocks for root grafting, assort, tie in bundles of convenient size, and bury where they can be got at readily during the winter. If packed in damp sawdust and put in a cool cellar they will keep equally well.

Clons.—Cut at any time when the tree is not frozen. Store in sawdust. See that they do not dry out during the winter.

Seedlings which need protection must not be covered until quite cold. Leaves are the cheapest and best covering which can be used, and they are also generally the easiest to procure.

Fruit Garden.

Pears which have been stored for ripening will, many of them, now be ready for marketing. If properly assorted they will bring good prices. A good plan for marketing choice specimens of large varieties is to place a single layer in a shallow box, wrapping each pear in soft white paper.

Covering.—Attend to the covering of such plants as require protection during the winter. Try to apply it just as winter sets in. More plants are killed by covering too soon than are lost from delaying the operation. In this latitude the last of this month or first of next is soon enough to cover.

Grape-Vines.—There are nearly as many "systems" in training and pruning grape-vines as there are persons who grow grapes, and it will be of no use to commend this or that system, as it depends a great deal upon what object one has in view in training. The different methods have been mentioned from time to time in our columns, and we refer the novice to the numerous articles given for the last ten years. Suffice it to say that in whatever style pruning may be done, one or more extra buds should be left on a cane than will be needed in the spring, so as to allow for the winter-killing which often happens. If possible, prune in the fall, for it is often difficult to prune early enough in the spring to prevent bleeding.

Grape Cuttings.—Save the prunings of such varieties as it is desirable to propagate. Cut the

wood into proper lengths, containing two or more buds; tie in bundles of not more than a hundred, and set in boxes of sand or light loam in the cellar. If bunches larger than a hundred cuttings are put into earth there is danger of decay. If people generally knew the ease with which grapes are propagated there would be more vineyards, or at least more families who would grow their own grapes than there are now.

Root Cuttings may now be made of such plants as propagate in this way. Blackberries and raspberries are readily increased by root cuttings; the roots are to be cut into pieces two or three inches long, packed in a box with sand, and buried in spots free from water and deep enough to be out of the way of frost.

Cuttings of currants and gooseberries can be made and planted as long as the ground remains open. The main point to be looked out for is to pack the earth firmly around the lower ends of the cuttings.

Trellises.—The present month is a good time to paint or apply a wash to the trellises which are used for training cordon and other forms of trees upon. A trellis treated in this way looks better and will be more serviceable than when left unpainted.

Insects.—The past season has witnessed the extensive ravages in some sections of the white Scale or Louse, *Aspidiotus Harrisii*. If young trees are affected to any extent with this insect the shortest way to destroy them is to dig up and burn the trees. This is a harsh method, and most persons would be willing to go to considerable expense rather than destroy an established orchard. A wash of whale-oil soap, to which has been added a small proportion of carbolic acid, and applied with a stiff brush which will remove the scale, is probably as effective as any way yet known. Every scale must, however, be removed, for a single one left upon a tree will be enough to soon cover it again.

Kitchen Garden.

The directions given last month in regard to plowing and spading should be followed as long as the ground remains open. Sod land should be plowed and left in ridges, so that the frost may have a chance to mellow and make it suitable for planting in the spring.

Drains.—Where drains are needed, the present month is a good time to lay them, unless the land is so wet by the fall rains that it can not be worked to advantage.

Asparagus.—Cover with a thick coating of manure, first cutting the tops and burning. If the tops are not burned, the seed if scattered through the manure will sprout and prove as troublesome to exterminate as many of our common weeds.

Cold-Frames for the protection of cabbages and other plants should not be covered except at night until very severe weather. The flap should be to keep the plants from growing as well as from freezing.

Cabbages.—The best plan for storing cabbages is to invert the heads and cover with four to six inches of earth, leaving the roots exposed. A dry place where the water will not stand should be selected.

Celery.—Store in trenches a foot wide and deep enough to receive the stalks, placing the plants as close as possible without using any earth, and cover with boards and straw, gradually increasing the thickness of the covering as the weather becomes more severe.

Spinach will be all the better in the spring for a slight covering of hay or leaves, applied just as the ground begins to freeze.

Lettuce.—The hardy sorts which were sown last month will need a little litter thrown over them to preserve them.

Manure is the main stay of the gardener as well as the farmer, as without it nothing can be done, while with it wonderful results can be accomplished. Apply all that can be carted out this month to the

garden, where it can remain in heaps during the winter.

Roots.—Store in barrels or bins in a root cellar, or bury in pits in the open ground. Parsnips and radishes may be left in the ground during the winter.

Flower Garden and Lawn.

Few things in addition to last month's notes need be added, as many of the directions given then will answer equally well now. Strive in this department, as in the others, to keep ahead of the work, and so arrange it that the spring work will go on smoothly next season.

Planting may yet be done, and the directions given for fruit tree planting will answer as well for ornamental deciduous trees and shrubs.

Bulbs should have been planted last month, but if the weather is moderately mild it will answer to plant now with the expectation of good results. Take up bulbs of Gladiolus, etc., at once. Cover all bulb beds with a coating of leaves or hay before the ground freezes.

Chrysanthemums.—Stake those in bloom, and remove such as are worthy to the greenhouse, where they will flower for some weeks.

Dahlias.—Take up all still remaining in the ground and store in a dry cellar.

Protection.—As the weather grows cooler protect half-hardy plants with straw or litter, taking care not to apply until quite cold.

Greenhouse and Window Plants.

This department will be the showy one for a few months to come, and every means should be taken to render the greenhouse and the house itself as attractive as possible. Nothing adds so much to the cheery appearance of a room as a few well-grown plants, and every one can enjoy the comfort which beautiful flowers bring. Look out for sudden changes of temperature, and if there is danger of freezing weather fires should be started at once.

Insects.—Look out for red-spider and mealy-bug. The former may be destroyed by moisture, and the latter with white-oil soap or alcohol.

Bulbs which were potted last month and placed in a frame or the cellar may be brought out a few pots at a time, and a succession of Hyacinth and other flowers had from Christmas until March.

Camellias.—Keep in a cool greenhouse, and use the syringe frequently to keep the foliage clean and healthy.

Propagation may be carried on at any time to secure a stock for another spring and to fill vacancies.

Climbers.—Train climbers upon the roof rafters so as to furnish flowers and shade. For this purpose *Passiflora*, *Tecoma*, *Tropaeolum*, etc., are all valuable.

Annuals.—Sow seeds of Sweet Alyssum, Mignonette, etc., from time to time for cut flowers.

Heliotropes are especially valuable for winter bouquets, as their delicious odor makes them greatly sought for. They should have plenty of pot room in order to give the greatest quantity of flowers.

Roses.—Give a watering of liquid manure once or twice a week to hasten the growth and flowers.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Oct. 13th, 1873, and for the corresponding month last year.

TRANSACTIONS AT THE NEW YORK MARKETS.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 ds. this mth.	25 ds. last mth.	25 ds. last yr.
	311,000	4,166,000	3,813,000	104,000	87,000	817,000	271,000	2,183,000	4,538,000
				97,000	8,500	965,000			
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 ds. this mth.	25 ds. last mth.	25 ds. last yr.
	439,000	4,199,000	4,596,000	147,000	86,000	1,043,000	271,000	2,947,000	4,802,000
				239,000	7,000	2,047,000			
COMPARISON WITH SAME PERIOD AT THIS TIME LAST YEAR.									
RECEIPTS.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 days 1873.	25 days 1872.	25 days 1871.
	841,000	4,416,000	3,813,000	104,000	87,000	817,000	271,000	2,230,000	5,324,000
				97,000	8,500	965,000			
SALES.	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.	25 days 1873.	25 days 1872.	25 days 1871.
	449,000	4,199,000	4,596,000	147,000	86,000	1,043,000	271,000	2,749,000	5,573,000
				239,000	61,000	43,000			

3. Stock of grain in store at New York.

	Wheat.	Corn.	Rye.	Barley.	Oats.	Ma't.
Oct. 6, 1873.	1,570,801	5,424,631	43,267	643,725	1,451,868	201,737
Oct. 7, 1871.	23,142	3,812,181	39,225	40,625	2,505,006	12,333

4. Receipts at head of tide-water at Albany each season to Sept. 30th.

	Flour.	Wheat.	Corn.	Rye.	Barley.	Oats.
1873.	92,400	13,001,200	12,323,800	775,300	95,100	2,330,500
1872.	83,900	5,610,800	22,562,500	356,700	635,900	4,760,700
1871.	164,900	18,141,000	16,722,700	511,500	600,800	3,414,500
1870.	301,200	10,053,300	8,733,000	392,700	733,600	4,037,300

CURRENT WHOLESALE PRICES.

	Sept. 13.	Oct. 13.
PRICE OF GOLD.	111%	108%
FLOUR—Super to Extra State	\$5 30 @ 8 35	\$5 40 @ 7 50
Super to Extra Southern	7 10 @ 11 00	6 50 @ 11 00
Extra Western	6 00 @ 11 00	6 20 @ 11 25
Extra Genesee	8 35 @ 10 00	7 50 @ 9 75
Superfine Western	5 30 @ 6 25	5 40 @ 6 15
RYE FLOUR	4 40 @ 5 70	4 75 @ 6 00
CORN-MEAL	2 65 @ 3 90	2 65 @ 4 00
WHEAT—All kinds of White.	1 02 1/2 @ 1 90	1 05 @ 1 80
All kinds of Red and Amber.	1 40 @ 1 75	1 30 @ 1 65
CORN—Yellow	65 @ 66	64 @ 64
Mixed	58 @ 66	51 @ 64
White	66 @ 70	64 @ 66
OATS—Western	45 @ 52	51 @ 58
State	45 @ 52	51 @ 58
RYE	58 @ 98	58 @ 97
BARLEY	1 10 @ 1 25	1 25 @ 1 75
HAY—100 lbs.	1 00 @ 1 50	63 @ 1 50
STRAW—100 lbs.	70 @ 90	65 @ 90
COTTON—Middlings, 1/2 D.	20 1/2 @ 21	18 1/2 @ 19
Hops—Crop of 1873, 1/2 D.	40 @ 50	40 @ 53
FEATHERS—Live Geese, 1/2 D.	— @ —	60 @ 85
SEED—Clover, 1/2 D.	9 @ 9 1/2	10 1/2 @ 10 1/2
Timothy, 1/2 bushel	2 25 @ 3 50	2 15 @ 3 25
Flax, 1/2 bushel	2 25 @ 2 25	2 15 @ 2 25
SUGAR—Refined & Grocery 1/2 D.	7 @ 9 1/2	6 1/2 @ 9 1/2
MOLASSES, Cuba, 1/2 gal.	30 @ 40	27 @ 40
New Orleans, 1/2 gal.	84 @ 93	80 @ 88
COFFEE—Rio (Gold), 1/2 D.	21 @ 23 1/2	19 1/2 @ 21 1/2
Tobacco, Kentucky, &c., 1/2 D.	7 @ 15	7 @ 15
Seed Leaf, 1/2 D.	6 @ 65	6 @ 65
Wool—Domestic Fleeced, 1/2 D.	40 @ 62 1/2	40 @ 62 1/2
Domestic, pulled, 1/2 D.	30 @ 50	30 @ 50
California, clip, 1/2 D.	18 @ 34	18 @ 34
TALLOW, 1/2 D.	8 @ 8 1/2	7 1/2 @ 7 1/2
OIL—Coke, 1/2 D.	36 @ 38 50	37 @ 38 50
PORK—Mess, 1/2 barrel	17 57 1/2 @ 17 50	16 75 @ 17 00
Prime, 1/2 barrel	— @ 15 00	— @ 11 75
BEEF—Plain mess, 1/2 D.	8 @ 10	8 @ 10
LARD, in kegs & barrels, 1/2 D.	8 @ 8 1/2	8 @ 8 1/2
BUTTER—State, new 1/2 D.	24 @ 35	25 @ 40
Western, 1/2 D.	15 @ 25	16 @ 28
CHEESE	5 @ 13	5 @ 14 1/2
BEANS—1/2 bushel	1 65 @ 3 15	1 35 @ 3 00
PEAS—Canada, free, 1/2 bu.	1 22 @ 1 15	1 15 @ 1 19
EGGS—Fresh, 1/2 dozen	25 @ 25	23 @ 23
POTTERY—Fowls	15 @ 20	16 @ 20
Turkeys—1/2 D.	18 @ 25	15 @ 22
Geese, 1/2 pair	1 50 @ 2 50	1 75 @ 3 00
Ducks, 1/2 pair	60 @ 1 00	65 @ 1 25
Pigeons, 1/2 doz.	1 18 @ 1 30	1 25 @ 2 25
Woodcock, 1/2 pair	1 25 @ 1 37	60 @ 80
Partridges, 1/2 pair	75 @ 87	70 @ 75
Grouse, trapped, 1/2 pair	— @ —	65 @ 75
HARES, 1/2 pair	— @ —	15 @ 23
VENISON, 1/2 D.	1 00 @ 1 50	1 25 @ 2 25
TURKISH, 1/2 D.	4 09 @ 10 00	4 60 @ 10 00
CABBAGES—1/2 D.	1 50 @ 2 50	1 50 @ 2 50
POTATOES—1/2 D.	3 50 @ 4 00	3 00 @ 3 50
CARROTS—1/2 D.	5 @ 12	6 @ 14
BROOM-CORN	1 00 @ 1 50	2 00 @ 4 00
APPLES—1/2 bushel	3 00 @ 7 00	4 00 @ 10 00
PEACHES, 1/2 crate	1 75 @ 3 50	— @ —
CRANBERRIES—1/2 D.	— @ —	4 50 @ 9 00
PEARS, 1/2 D.	2 00 @ 8 00	2 00 @ 11 00
GRAPES, 1/2 D.	5 @ 12	4 @ 12
TOMATOES, 1/2 bushel	40 @ 50	60 @ 75
GREEN PEAS, 1/2 bushel	1 37 @ 1 50	1 65 @ 1 80
GREEN CORN, 1/2 D.	75 @ 1 25	1 00 @ 1 50
LIMA BEANS, 1/2 bushel	1 75 @ 2 50	2 25 @ 3 00
MAPLE SUGAR, 1/2 D.	5 @ 8	5 @ 8
MAPLE SYRUP, 1/2 gallon	1 00 @ 1 35	1 00 @ 1 35
CIDER, new, 1/2 gallon	15 @ —	20 @ 22
MILK, 1/2 quart can.	1 25 @ 1 50	1 50 @ 3 00

Gold has fallen to 108 1/2—closing October 13th at 108 1/2 @ 108 1/2, as against 111 1/2 on September 13th. An extraordinary and very disastrous financial panic has been the notable event of the month. Its effects on general business have been very injurious. It led to extreme stringency in money, and unusual depression in foreign exchange. For some days there was no market for either, and no prices named. These very adverse circumstances greatly embarrassed the produce movement. Exporters were unable to execute their orders for breadstuffs, provisions, etc., without extreme difficulty. Prices of most kinds of produce yielded materially to these unfavorable influences. Yet, in the face of the gravest financial disturbances, the commercial classes were remarkably strong and confident, feeling the money pressure, of course, but not as severely as might have been anticipated, and no houses of any great prominence in the produce or merchandise lines were reported as having had to succumb to the stringency. This argues well for the substantial soundness and prosperity of the mercantile classes, as reflecting the actual condition of the industrial and commercial interests of the country. Toward the close, the markets were reported as working more satisfactorily, influenced by the improved monetary movements, and increasing activity in the foreign exchanges. Though business was so seriously impeded during the month, through the effects of the financial panic, the export trade in produce forced itself up to an enormous aggregate at the port of New York—the week's shipments to foreign ports for the week ending October 6th, having been the unprecedented amount of \$3,373,120 in gold and currency values. The exports, that week, included of wheat alone, 1,784,989 bushels. Bread-

stuffs, provisions, and cotton, closed lower, on a moderately active inquiry. Tobacco has been steady and in fair request, mostly for shipment. Hops attracted much less attention, closing irregularly. Hay and seeds quiet, and weak in price. Straw slow of sale, with values favoring buyers.

New York Live-Stock Markets.

WEEK ENDING	Bees.	Cows.	Calfs.	Sheep.	Swine.	Total.
September 15.	10,000	43	2,816	28,496	33,338	81,233
September 22.	10,013	90	3,179	31,115	33,241	77,709
September 29.	9,783	89	3,129	29,410	33,439	77,366
October 6.	9,938	44	2,031	26,677	31,633	71,309
October 13.	8,175	103	2,897	25,015	29,017	61,112
Total for 5 Weeks.	47,464	365	18,552	145,539	168,738	373,448
do. for prev. 4 Weeks.	40,233	408	11,229	117,793	131,682	301,316

Average per Week.	Bees.	Cows.	Calfs.	Sheep.	Swine.
do. do. last Month.	9,493	72	2,710	29,962	33,731
do. do. prev. Month.	10,058	102	2,807	29,418	32,930
do. do. prev. 4 Weeks.	9,213	113	3,182	26,696	31,072

Bees.—The market for the past month has been affected more by the unfavorable condition of the money market than by any other influence. The scarcity of currency has tended to contract operations, and the dealings have been mostly for cash. As might be expected under such circumstances prices gave way, and if receipts had not fallen off they would probably have been lower still. Arrivals, however, have been light, and last week the market regained what had been lost previously. The receipts for the past four days were 6,251 head against 3,047 for the same time the previous week. The quality was poor, and this with the large receipts caused a reduction on poor and inferior stock and a slow trade generally. A lot of 7 cars of mixed Texans and Cherokees direct from Kansas beat for 6 1/2 c. to dress 54 to the gross cwt., were left unsold. A few of the best native ewes were sold at 12 1/2 c. @ 12 1/2 c. 1/2 D. to dress 58 lbs. to the gross cwt., and several car-loads of common do. at 9 1/2 c. 1/2 D. to dress 55 lbs. @ 56 lbs., to the gross cwt. Very fair Texans were selling at 9 c. @ 9 1/2 c. 1/2 D., to dress 56 lbs.

Prices for the last four weeks were:

WEEK ENDING	Range.	Large Sales.	Aver.
September 15.	7 @ 12 1/2 c.	9 1/2 @ 11 1/2 c.	10 1/2 c.
September 22.	7 @ 12 1/2 c.	9 1/2 @ 11 1/2 c.	10 1/2 c.
September 29.	6 1/2 @ 13 c.	9 1/2 @ 12 c.	10 1/2 c.
October 6.	6 @ 12 1/2 c.	9 @ 11 c.	10 c.
October 13.	7 @ 13 c.	9 @ 11 c.	10 c.

Milk Cows.—The demand for milk cows has continued light; the light receipts, however, had about met the demand, and prices remain the same. Common to extra cows will bring \$35 to \$75 readily with the present demand. **Calfs.**—The demand for calves has fallen off somewhat, but notwithstanding a slow trade prices remain steady. Grass calves are in better supply and of low sale at \$5 to \$8 1/2 head. Veals sell for 7 1/2 c. @ 9 1/2 c. 1/2 D. for common to good, and 9 1/2 c. @ 10 c. for choice to extra. **Sheep and Lambs.**—The market has been lower on both sheep and lambs, and the depression has been assisted by the failure of one of the largest slaughterers. Last week prices declined fully 1/2 c. 1/2 D. and the quotations now are 4 1/2 c. @ 6 1/2 c. 1/2 D. for sheep and 6 1/2 c. @ 8 1/2 c. 1/2 D. for lambs. **Swine.**—Receipts have been light with steady prices. Live hogs have been scarce, and although the general tone of the market has been weak yet prices remain the same. The market for live hogs is now brisk, and sales are readily made at 5 1/2 c. @ 5 1/2 c. 1/2 D. Dressed sell fairly at 6 1/2 c. @ 7 1/2 c. 1/2 D., with light pigs at 7 1/2 c.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd Company, Post-Office Money Orders** for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On American Agriculturist, 12 cents a year, and on Health and Home, 20 cents a year, in advance. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage, as above, must be sent to this office, with the subscription, for prepayment here. Also 20 cents for delivery of *Health and Home* and 12 cents for delivery of *American Agriculturist* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes

(16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$8; making a club of 20 at \$1 each; and so of the other club rates.

Our Basket is again full, and a part of it has overflowed and will be found on page 437. Notwithstanding that we answer a large share of inquiries by mail we still find ourselves with less room than we need to give all the replies we have in type. When the answer to an inquiry is of interest to the writer only, we prefer to answer him by mail, as we do not care to occupy space with items that will not be useful to a number of readers. Please observe: Letters without signatures will receive no attention. In asking for information make the questions as concise as possible. Do not mix widely different subjects on the same sheet—such as a question about a lame horse and one about a rose-bush, but write them upon different slips of paper or postal cards so they can be given out to the editors of the different departments. Do not crowd too many questions in a letter. If a letter, as is sometimes the case, contains ten or a dozen different queries it is apt to be put aside until all those that offer but one or two are disposed of. Especially, do not feel neglected if an inquiry is not answered at once. We try to respond to the letters of our friends as far as possible, and when we do not there is some good reason for it. Some inconsiderate persons take it as a personal affront if their inquiries are not answered at once, when they were probably received long after the paper had gone to press. These and all others should recollect that answering inquiries is a matter of courtesy and done through a desire to help our friends in every way that we can. We are conscious of using our best endeavors to serve our immense number of correspondents, and if any are omitted it is not from any desire or willingness to neglect them, but through inability to do more than a day's work in 24 hours.

Concrete Building.—"J. C. M.," Lafayette Co., Wis. The best material for concrete is the broken refuse from a limestone quarry, mixed with clean, sharp sand and cement. The proportions are two bushels of cement, three bushels sand, and five bushels of limestone chips. This makes the best possible work, but it is costly. A very good concrete may be made by using only half the above quantity of cement, and we have even seen very strong buildings in which lime only has been used instead of cement. The whole process was explained in the *Agriculturist* of March, 1872.

Painting and Graining.—"W. W. S.," Mansfield, O. The best hand-books on painting, graining, and carriage painting are those of J. W. Masury—viz.: Masury's House-painting, price \$1.50; Grainers' Hand-book, with handsome illustrative plates, \$2.00; and the Carriage-painters' Companion, with specimens of colors described, \$1.00. These may be procured of the Orange Judd Company, mailed at the above prices.

Butter and Cheese Exchange.—We call the attention of dairymen to the establishment of a Butter and Cheese Exchange in the city of New York, in a central location on Greenwich street, of which W. S. Fairfield is president and H. A. Pierce secretary. When it is considered that the trade in dairy products centering in the district around this exchange amounts yearly to 3,500,000 packages of butter and cheese, for a total value of 50 millions of dollars, the necessity for some regulating power is apparent. The good effect of this exchange upon the interests of dairymen can not be questioned, if nothing more is done than the establishment of trustworthy quotations of prices and the providing a central place where sellers and buyers may meet at any moment. To country dealers and dairy factories it is especially needful, as by becoming members of the exchange they will be guaranteed just and honorable dealings by the commission men they employ, provided they employ fellow members of the exchange. The admission fee is \$50 for the first year and \$25 yearly thereafter.

Prospects for Prices.—It is absolutely certain that the deficiency in the harvests of Europe will make necessary the purchase of 150 million bushels of grain. It is equally certain that the largest proportion of this vast quantity must be bought in American markets. Without trespassing upon our own requirements, at least as to wheat, we can not spare this vast

amount, nor half of it. Prices are likely to advance before next harvest, and many are the devices and tricks by which speculators hope to avail themselves of the profits which may result from the rise in price. There is a wholesome demand for grain now, and if farmers demand the value of their crops they will secure it.

Fairs as Educational Institutions.

—It is rather difficult to fix the exact purpose for which agricultural fairs are held. If the associations under whose auspices they are instituted were questioned they would probably reply: "We wish to educate and amuse the farmer, and combine business with pleasure." Some of them succeed very fairly in their endeavor to do both things, and some educate and some amuse. Amongst the latter class we must include the New Jersey Agricultural Association, who certainly amused if they did not instruct the visitors by the very funny nomenclature of the poultry and small animals on exhibition. For instance, we studied with great interest over a "Kochien rooster" and a pair of "rabbeets." By whose ingenuity these new readings of old matters were permitted is not known to us, but if amusement is not altogether the aim at this fair it would be well to have the animals correctly labeled.

The American Submerged Pump.

—Several of our neighbors have this pump in use in wells, cisterns, and for greenhouse purposes, and all speak in high terms of its utility. Aside from being an efficient machine for raising water for domestic use, it is a powerful force pump. Being able to throw a good stream to a considerable distance, it has proved itself of great value as an engine in checking a number of conflagrations that threatened to be disastrous. Our advertising columns give information where this pump may be purchased.

Slobbering Horses.

—"W. G. S.," Spencer Co., Md. On examining into the cause of severe cases of slobbering in our colts and horses when turned into clover stubble, we found the stubble quite full of lobelia, which had been crowded down by the first crop but had sprung up thickly as soon as the field had been mown. The second crop of hay cut from another field was found to contain much of this acrid weed, which caused the horses to slobber whenever the hay was fed to them. The clover in a field in which we could not find any of the lobelia had no such effect. We therefore attributed it to the weeds, and do so still. St. John's wort has a similar effect on horses and colts.

One Week's Business.

—The immense amount of business doing in produce may be realized when we consider the quantity exported from the single port of New York in one week, the last one in September. There were 32,000 barrels of flour, 1,200,000 bushels of wheat, 200,000 of corn, and 33,000 of rye; 281 barrels of pork, 431 of beef, 5,600 of lard, 5,000 boxes of bacon, 18,500 boxes of cheese, 650 kegs of butter, 3,500 hogs-heads of tobacco, and 4,500 bales of cotton.

For other Basket Items see pp. 437 and 498.

A Jumping Colt.

—"S. F. S.," Neoga, Ill. We know of no way of preventing a colt that will jump over a ten-rail fence from doing so except keeping him in a stable. It would be better to sell him for work in a town or city, where he could not exercise his bad habit, than to be troubled with him upon a farm.

Buckwheat Straw for Feed.

—"S. F. S.," Buckwheat straw, either green or dry, is the very poorest feed. It should be used for litter.

Crude Petroleum.

—"F. H. E.," Carlisle, Ind. The very simple meaning of the term crude ought to be sufficient to designate crude petroleum as entirely distinct from the refined oil. The crude oil is just as it comes from the well. We were never in any place yet but what crude oil could be procured there. It is mostly used for lubricating machinery. The crude product of the oil wells is a thick, semi-liquid, dark colored, almost black oil. It has a great amount of "body" in it, which when it is refined remains in the still as paraffine and a sort of bitumen. When this crude oil is used to paint the outside of barns, sheds, or other buildings or fences, it sinks into the pores of the wood and fills them with the most effective preservative against moisture and consequent decay. Its natural "body" makes any solid addition to it unnecessary, and also makes it a very valuable ground upon which to lay a coat of ordinary paint. Its remarkable cheapness is also a great advantage, and we know of no other method of painting farm buildings so cheap or so convenient as to give them a coat of crude petroleum at this season of the

year, followed by a coat of Chemical Paint, which may be purchased already prepared of any desired shade. One of the most desirable shades, to our fancy, is a light brown, which does not show the peculiar marks or color common to farm dirt.

Beef to England.

—One hundred and thirty head of beef cattle were recently shipped on one steamer to a British port. This fact is significant. With beef retailing at thirty cents per pound in our Eastern cities, we are called upon to spare part of our supply to feed foreign nations. With the home market supplied so barely that prices of the better portions of the carcass are beyond the reach of those of moderate means, we have now an additional demand. We have many a time called attention to the fact that beef-raising can not for a long series of years be less profitable than it now is, and that it is one of the best paying branches of agriculture. If we are to feed the world with beef we must raise more than we now do.

Jersey Stock.

—A very short time ago \$300 was thought an extravagant price for a Jersey cow. Farmers were heard to say that no cow could be worth so much. But recently we heard the plain tale of a plain farmer whose extra butter, truly "glit-edged," we were admiring at the tables appropriated to the dairy department at the New York State Fair, and which took the first premium. He is Mr. Wm. V. S. Beckmann, of Saugerties, N. Y., the owner of a small dairy of six cows, who does all his work himself, farming, milking, and churning, and who reads and studies the *Agriculturist*. His latter sells for 65 cents a pound in the city of New York. His cows are pure Jerseys, and his pure pedigree Jersey bull was on exhibition at the same fair. Sixty-five cents is exactly double the price of extra Orange Co. palls in the market at that time. The difference goes to express the value of the Jersey over the native cow; and if some enterprising individual had not imported at some time the stock from which Mr. Beckmann's cows are descended at possibly a cost of \$1,000 or over per head, a great many such farmers as Mr. Beckman could never have possessed a Jersey cow.

Premium Lists will be found on pages 423 to 426.

SUNDRY HUMBUGS.

—The old butter powder humbug is revived again. Our Western correspondents inform us that swindlers are operating this time in Indiana selling for \$5 a receipt to make

EIGHT POUNDS OF BUTTER FROM A GALLON OF MILK!

It almost passes belief that any one can be found so simple as to be caught by so bare a hook as this. As a gallon of pure milk weighs about 8½ pounds, the absurdity of converting all but about half a pound of it into butter has only to be stated to be exposed. What very shallow, thoughtless people they must be who pay their money for such a transparent humbug. . . . A large number of circulars of a furnishing store in Chicago have been sent us, and we are asked to state whether the affair is a humbug or not. Sales are made by ticket, and there is a great deal of circumlocution about the whole matter which seems to be quite unnecessary. All we can do in the present case is to advise our correspondents to buy their goods of dealers whom they know and upon whom they can rely, and to always bear in mind that really good articles are rarely sold for much less than they are worth. . . . Several complaints have come to us of R. H. London, who sends out a circular offering "Combination Needle-book and Portemonnaie," "Stationary Package," etc., and also announcing himself as keeping a "purchasing agency." Our correspondents state they have sent money and got no returns nor replies to repeated letters of inquiry. The circulars date from 630 Broadway, but no such person as R. H. London can be found at that number.

DEALERS IN "GOODS" OR "QUEER"

seem to be jealous of one another, to judge from the pains they take to secure their customers. Formerly they gave their victims minute directions how to find them, but they now play a different game and call upon their customers.

As it is so long since we exposed this fraud in detail it may be interesting to newer subscribers to have a specimen of the unblushing audacity of these counterfeit money dealers. The circulars sent out are, for the most part, the same; these are accompanied by a lithographic circular or a loose slip of paper upon which is given a name and address. The names show a wonderful variety, but they are for the most part written in the same hand and sent out with the same circular. Here is the bait:

"In the first place, I wish to inform you that I am an Engraver, and wish to be by those who are competent of judging, the most expert one in America. I have been employed by the U. S. Government for twelve years. I

superintended the engraving of all the plates for the United States money. When the Government ceased to issue Greenbacks my services were no longer required, and as soon as I found that my time was my own I conceived the idea of engraving a few plates for myself and for my benefit, as I am well aware a man can not become rich by working for a salary. I have just finished the work that I began almost three years since; that is, the engraving of seven plates, which are exact duplicates of the Government's, namely: the ONE, TWO, FIVE, TEN, and TWENTY DOLLAR, and TWENTY-FIVE and FIFTY CENT Fractional Currency Plates. I have taken the greatest care in engraving these plates, and I defy any one to detect my counterfeit from the genuine. I use the same paper as the Government uses, as well as the same identical ink, and all my notes are correctly numbered and properly signed, all ready for immediate use. I assure you the goods are perfect in every respect and can not be detected from the genuine. They have in several instances been passed over bank counters without exciting the least suspicion; it is therefore improbable that you will ever get in any trouble or ever meet any one who can distinguish them from the genuine.

"I guarantee every note to be perfect, for every note is examined carefully by myself as soon as finished, and if not strictly perfect is immediately destroyed. Of course, it won't be foolhardiness for me to send poor work, as it would not only get my customers in trouble, but would break up my business and ruin me. So, for personal safety, I am compelled to issue nothing that will not compare with the genuine money.

"I can furnish you the goods in any quantity, at the following prices, which will be found as reasonable as the nature of the business will allow.

For a \$1,000 in my goods, assorted as you desire, I charge \$100.

For a \$2,500 in my goods, assorted as you desire, I charge \$200.

For a \$5,000 in my goods, assorted as you desire, I charge \$350.

For a \$10,000 in my goods, assorted as you desire, I charge \$600.

"You can see from the above price-list the advantage of buying largely. You can not make money as rapidly in any other business, and there is not the slightest danger in using my goods, one of the best proofs being that not a person doing business with me has ever been in any trouble, but, on the contrary, all are making money. I have no connection with any other firm in this country, and every dollar of my money is manufactured under my own personal supervision—so in dealing with me you get the goods from first hands."

Then follow various details, cautions, etc. Formerly these circulars insisted on transacting their business by express; later they gave directions to the victim for finding the trap, but the latest dodge is to accompany the tempting circular with something like the following:

"READ THIS CAREFULLY!

"If you want to be sure and see me, and not be disappointed, follow these instructions: Two or three days before you leave home, write me when you will be here, and say what hotel you will stop at. *Be sure to write me from home*; do not wait until you arrive in this city and then drop me a letter, for you will save time by doing as I ask you. On your arrival in this city, go directly to the hotel named on the inclosed card, take a room and register your name; go up to your room and remain in until I call. Remember, I do not know you by sight, so if you are around the hotel it will be impossible for me to recognize you, and I can only find you by calling on you up in your room.

"When you arrive at the depot here there is no doubt but that you will be spoken to by strangers, who will try to make your acquaintance. Some will represent themselves to be the party you are looking for, others will ask you what hotel you are looking for, and when you tell them they will try and persuade you to go to some other; and other men may ask you if you have received a confidential letter—but remember, *not one of those men are the party you are looking for*. Even if I knew you, and met you on the street, I would not speak to you except up in your room at the hotel; and as I will know from the letter you write me, *before you leave home*, when you will be here, of course I will be on the look-out for you, and will be waiting your arrival at the hotel. *Any one who speaks to you, have nothing whatever to say to them*. When I call on you in your room, I will immediately hand you your letter, and when you see your own handwriting then you will know you are dealing with the right party. *Be sure to remember that any one who can not show you your last letter has no right to speak to you*.

"I have put you on your guard, and if you obey these instructions, you can not fail to see me."

There is also inclosed a card of one of the cheaper hotels kept upon the European Plan. Now this business has been carried on in one form or another for years, and must be profitable, or those engaged would not persist in it. That it can be successfully and thus openly prosecuted is a sad comment upon the efficiency of our Treasury Department.

INQUIRIES ABOUT DOCTORS.

Notwithstanding our frequent declarations, letters still come asking about this and that fellow who calls himself "doctor," and we find it necessary to repeat that we can not reply to such inquiries. We have stated over and over again, that any one who advertises his cures or puts out circulars and pamphlets setting forth his own skill or the virtues of any particular medicine is a quack, and to be avoided.

TEMPTATION TO MINISTERS.

A chap by the name of H. G. G. Fink, has a "Magic Oil," and he sends out a circular "Confidential to minis-

ters of the M. E. Church only," in which he offers to make the ministers agents for the sale of his "Magic Oil," or to pay those a commission who will find him a person to act as agent. This chap claims to have "devoted the prime of (my) his life to the work of the ministry." We may infer, as he deals in *Magic* oil, that he is devoting the rest of his life to quite another service. We think that this "fellow laborer in the Gospel" needs the especial attention of his bishop.

THE ELECTRIC HEALTH RESTORER.

In last month's *Hanbuds* we mentioned the remarkable manner in which this thing was "discovered." A correspondent in Wolcott, N. Y., sends us one of the circulars and says: "Please inquire and see if the firm are sawndust swindlers and what their names are." This Electric Health Restoring Co. advertises itself at 233 Thompson Street, New York City. We find 233 Thompson Street to be the side basement door of 77 Amity street, and the place from which come the "Wine of Apocynum," "Mother Noble's Healing Syrup," "Dr. Clark Johnson's Indian Blood Syrup," and all the rest of it.

OLD MOTHER NOBLE'S SYRUP

is still working in New Jersey. That "citizen of Rahway" whose letter we presented not long ago, claiming \$100 as damage we have done to his business, is so much pleased with the notoriety we have given him by publishing his letter that he writes again, but we shall not gratify him by printing his elegant epistle. But now comes one

MR. WILLIAM BROWN,

of Plainfield, N. J. William wishes to get into print, so we will gratify his desire. William says: "and another thing I speak of is what I saw in the *Agriculturist* of him (meaning 'citizen of Rahway') claiming damages of Orange Judd & Company, 245 Broadway, New York, for 100 dollars, which I think is no more than right [Printer will be sure to spell that right *wright* as I write it.—Ed.] of him for so doing, and I am certain if he is not recommended() according to his Claims I will have it published in all papers. I shall call and see him [do] to know if he has his money that he claims, for I am certain that it has done him more than that amount of damage, and if Orange Judd & Company are not willing to pay him I shall take it in hand myself," etc. Now if William means by taking the matter in hand himself that he proposes to pay "citizen of Rahway" \$100 or any other sum we have not the slightest objection, and if he will have us published "in all papers," we shall be under great obligations. In the meantime we would suggest to Mr. William Brown that many people have got rich by letting other people's business alone.

A Melon Cucumber.—Every now and then instances occur which go to show that pollen does have direct influence upon the fruit of the current year. The *Journal of Horticulture* (Eng.) reports and figures a melon and cucumber growing upon the same vine. Vines of both kinds are growing upon opposite sides of the same house, and it is inferred that a cucumber flower had become fertilized by pollen from the melon.

American Mowers and Reapers at Vienna.—THE BUCKEYE TRIUMPHANT.—The Buckeye Machine, which has won so many honors at home, but which was sent to Vienna to compete for the first time at a world's fair, has distanced all competitors, and has been awarded two first premium grand medals of merit. Adriance, Platt & Co. have also received the highest awards at the great German field trials in competition with all the leading American and English machines.

The Goodenough Horse-Shoe.—Jas. A. O'Neil, Granville Co., N. C. We have a very good opinion of the Goodenough horse-shoe, and of the system of shoeing adapted to the use of that shoe. It is a rational, humane, and very successful method of keeping the horse's foot sound and safe from injury.

Postage on Plants, etc.—Correspondents, especially those living near small post-offices, frequently write us that some postmasters refuse to take parcels of plants, seeds, etc., unless letter postage is paid, while others insist that the package must not exceed 12 ounces in weight. We should think every postmaster would take the *U. S. Mail*, a paper devoted exclusively to postal matters. As some evidently are not aware that the law was altered by the last Congress we will quote from the *U. S. Mail* for September, 1873, first page and last column: "On pamphlets, occasional publications, transient newspapers, magazines, and periodicals; hand-bills, posters, sheet-music, unsealed circulars, prospectuses, book manuscript and proof-sheets, printed cards, maps, lithographs, prints, chromo lithographs and engravings, seeds, cuttings, bulbs, roots, and clons—**A cent**

for each two ounces or fraction thereof—weight of package limited to four pounds." Single copies of this paper can be had for 10 cents by addressing Publishers U. S. Mail, New York.

Wool Prospects.—"Wool is hardening."

This is the expression of the present market reports. Importation of foreign wool is light. During one week recently not a single pound was received at Boston, and only 164 bales at New York. The increase of long-wool sheep constantly taking place is affecting the supply of middle and clothing wools, and half and three-quarter merino wools is the staple that promises the most steady and profitable demand for many years to come. It is fortunate for farmers that sheep-breeding is thus encouraged by the promises of the wool market, for the reason that there is no stock that so well repays the care bestowed upon it, nor any other that so tends to improve the condition of the farm upon which they are kept.

American Institute Fair.—This fair,

which will now soon close, should be seen by every visitor to New York. As an exhibition of implements and processes of industry it has never been surpassed, and there are thousands of things there which are of the greatest interest, especially to young folks. Persons living within a short distance of the city should make a point of visiting this fair although an especial journey should be made for this purpose.

The Agriculturist Patent Agency.

—Our friends who wish to know about terms and other matters should address their letters directly to the Agency, 245 Broadway, and they will meet with prompt attention. For the capability and trustworthiness of the gentleman in charge, we can refer to the Patent Office itself. For further particulars we refer to the advertising columns.

The Best Churn.—"J. C. M., Lafayette

Co., Wis.—The Blanchard Churn is one of the best of the square churns with rotating dashers; but it is doubtful if the rapid churning it performs is really best for the butter or as to economy of the process. The upright churn which brings the butter in about forty minutes is preferred by some of the fancy butter-makers.

Patent Superphosphate.—"W. T.,"

Columbia Co., Pa. A superphosphate composed of 600 pounds of bone, 200 pounds of sulphate of soda, 8 pounds of nitrate (of soda?), 50 pounds of salt, 200 pounds of plaster, 200 pounds of oil of vitriol, and seven bushels of sand would be very poor stuff. We doubt whether any patent could have been granted for such a mixture, which is not a superphosphate of lime, and has nothing new or ingenious about it.

From the Bench to the Farm.—

"W. E. B., Howard Co., Ind. A young man of 22, a shoemaker, with a few hundred dollars saved, should be cautious about changing his business, in which he has apparently been successful, for farming. He might possibly succeed in raising vegetables or small fruit on a few acres near a town or village, in a situation where he could carry on his business as the chief means of living and gradually change as he succeeded in his first small ventures; but on general principles we should fear an abrupt change would be disastrous.

Cough in Pigs.—"C. J. G.," West Jer-

sey, Ill. A cough is often the first symptom of what is called hog cholera, and should be attended to without delay on its first appearance. The pigs should be well nursed and housed; a dose of salts should be given to them, and the feed changed at once to vegetables, with bran and oatmeal scalded and fed cold in the shape of gruel before it sours.

Removing Blemish.—"M. A. M.,"

Elkhart, Ind. We know of no means that is to be depended on of removing the scar left by a severe blistering. A small quantity of powdered cantharides in lard is sometimes used to stimulate a new growth of hair, but if the hair follicles have been destroyed there is no remedy.

Broom-Making Machinery.—"T.

S., Clinton, La. The machines recently described in the *Agriculturist* for making brooms are so simple that they can easily be constructed by any fair mechanic. They are not made for sale.

See Pages 433, 434, 435, 436, 437, and 438.

Diseased Teats.—"J. W. H.," Black Horse,

Md. It is possible that the lumps in the cow's teats are

small tumors—which on pressure in milking discharge pus and blood into the milk. No mechanical means can prevent this effect if such is the cause. An application of iodine ointment to the outside of the udders in the neighborhood of the tumors twice a day might have the effect of producing absorption of the offending matter, or bathing in cold water might be tried. Nothing definite, however, could be said about it without more information.

Packing for Ice-House.—"F. S. B.," Lexington, Ky. Some substance that will not easily ferment and mold and rot is to be selected for packing for the ice-house. Fresh sawdust, tan-bark, or charcoal dust are the best if they can be procured. The next in usefulness are chaff from the thrashing-machine, finely cut straw or sawdust that has already been used for some seasons. Fine chips from a planing mill is very good packing. Buckwheat hulls or hemp heads are too easily rotted and fermented to be used for this purpose.

Drains in Level Land.—"S. H.," Oberlin, Ohio. Drains in land so nearly level that a fall of no more than two inches per 100 feet naturally exists may yet be made to do satisfactory work. The outlet should be deepened an extra foot, say 4 to 5 feet. Then commencing at the upper end of the laterals these drains may be given a fall of one foot to the 100, or 6 inches even would suffice if they are very carefully laid. Water is discharged with greater velocity from deep drains than from shallow ones, other things being equal.

Market-Garden Questions.—"I. C. O.," Basil, O. You can not carry on market gardening, as we understand it, upon clay or any other land without a plenty of manure. Potatoes or other farm crops should be raised the first year in order to get the land in good condition. We can not answer the questions as to quantities that may be raised, as much depends upon manure, variety of plant, and the cultivation.

The Western Poultry Association will hold its annual exhibition next January, 14-18 inclusive. The notice is dated Pittsburgh, Pa., and we assume that the show will be held there; but it is not so stated.

Grass for a Name.—A correspondent, whose address we have mislaid, sent a grass which he supposed to be "Quack," but it is one of the "Drop-seeds." Botanically it is *Muhlenbergia Mexicana*, but it does not seem to have acquired any common name. Its underground shoots make it, with us, almost as troublesome as "Quack," and it is by some mistaken for that. Animals are said to be fond of it, but it has never to our knowledge been cultivated.

Swivel Plows.—L. Mager, Hillsdale, Mich. The swivel plow may be employed very usefully upon level ground. By commencing at the center of the field and making there a back-furrow each half of the field is plowed in furrows all lying the same way. There are then no dead furrows, and the field is left in excellent shape for seeding to grass or crops in harvesting which machines are used. As the horses turn directly at the head of each furrow there is a great saving of time over plowing a field in land.

Improving Mossy Meadows.—"N. G.," Middleborough. When a meadow the soil of which is clay resting upon a hard pan seventeen inches below it becomes mossy it can best be improved by drainage. When thoroughly underdrained, and the impervious hard-pan is broken up, the moss will no longer appear. If this can not be done, wood-ashes or lime applied to the soil after it has been thoroughly plowed and subsoiled would tend to improve it. It should then be reseeded.

Late Chickens.—At this season of the year hens, unthoughtful of danger, will bring out from beneath some clump of neglected weeds, some stack, or the floor of some out-building a brood of shivering chicks, which if not well cared for will inevitably die from cold and exposure. We have always succeeded in making such a hapless brood survive the winter and come out the earliest of spring chickens, by giving them a warm coop in a corner of the barn or the stable and feeding them the waste of the kitchen table. In this way a little cheap attention will save them, and bring them out in March plump broilers worth a dollar a pair.

Beacon Belle, whose portrait appears upon our first page, is the property of Mr. William Crozier. She was bred by Mr. James Finley, of Monkland, Glasgow, Scotland, in 1833, and took five first prizes as the best Ayrshire cow at the exhibitions of the Scotch Agri-

cultural Society. Since her importation into America she has taken four first prizes, and her progeny have always taken the highest prizes wherever they have been exhibited. Her progeny is scattered all over the country, having been sent to California, Georgia, Mississippi, and Tennessee; and their descendants have also similarly been scattered. In Scotland she gave 36 quarts beer measure daily, as proved before a justice of the peace there. This is equal to 43½ quarts wine measure, or that by which we measure milk, probably as large a yield as that of any cow as well authenticated. She is now, in her 15th year, a month after dropping her 13th calf, milking 23 quarts a day; but this is not done without abundance of the best food.

Early Eggs.—"I. A. W.," Orange, N. J. If a few light Brahma pullets are kept in a warm, roomy, clean coop, and are fed upon corn-meal wetted with warm water, with a change to boiled potatoes fed warm, some chopped cabbage, scraps of meat, bread, etc., with plenty of pure water to drink and occasionally some powdered oyster shells and crushed pepper given in their feed, they will lay continually throughout the winter. Half a dozen fowls thus cared for will provide a family of moderate size with sufficient eggs. No cock is needed.

Paper Stock.—Of late years many new materials have been introduced into the manufacture of paper, and various foreign fibers have been introduced into commerce for this purpose. The field of experiment in this direction is by no means exhausted, and there are no doubt a number of native plants waiting to be utilized in this manner. One of our associates who was recently in Colorado brought home some paper made at Denver from the leaves of the Narrow-leaved Yucca—*Yucca angustifolia*. The paper was strong and heavy, but much better than any we have seen made from straw. The Androscoogin Pulp Co., Brunswick, Me., send us a specimen of board made of poplar wood, which will be useful for many purposes.

Pure Guano.—"J. A. R.," Ellaville, Ga. Pure guano as imported may be purchased of the agents of the Peruvian Government in New York in quantities of not less than 10 tons. In this or lesser quantities Carr & Hobson, 56 Beekman Street, N. Y., may be relied upon to sell it without admixture. But, after all, the pure article itself is subject to variation of quality.

"Agricultural Children."—An "Act" has recently been enacted by the English Parliament called the "Agricultural Children's Act." It provides that young children under the age of eight years shall not be employed in agricultural labor except by their parents. Children above that age and under ten years shall not be employed unless they can produce a certificate that they have attended school 250 times during the year, and if over ten 150 attendances are required for the year. There are exceptions made as to hay or other harvests, or if no school exists within two miles of the child's dwelling. Happily we have very few or none such "agricultural children" that we need legislate for.

How to get Farmers to Improve their Stock.—One of our subscribers in Vermont writes us that he wants to improve his stock, but that he is poor and his neighbors take so little interest in the matter that he does not think they would pay any more for a thorough-bred than for a common animal. We will tell him what to do. In fact, his own letter suggests the remedy. He says: "I like to read 'Walks and Talks' in the *Agriculturist*. I have a neighbor, a deacon, that is very like the Deacon that 'Walks and Talks' writes about, only not as good a farmer. I read the composition on weeds to him and some of my other neighbors, and told the rest about it." That is good so far as it goes. Tell your neighbors about the *Agriculturist*. Tell them you are going to get up a club for 1874, and that you want every farmer to sign for it. Make a business of getting subscribers for a few days; or if you can not do this yourself, get the postmaster or some one else to attend to the business, and help him all you can. If you can get a hundred subscribers to the *Agriculturist* in your town, and you certainly can if you try, there will be no difficulty about introducing good stock.

A Centennial Horticultural Society.

During the late exhibition of the Pennsylvania Horticultural Society a meeting of horticulturists was held for the purpose of organizing a society to aid in the horticultural department of the Centennial Exhibition in 1876. A committee, of which Col. Marshall P. Wilder was

chairman, reported a constitution and nominated officers. The Society is called the "Centennial Horticultural Society," and its chief object is to aid the United States Centennial Commissioners in the preparation of plans for the Horticultural Department of the Centennial Exposition, the planting of the garden, the construction and management of horticultural houses, and to provide for the proper representation of the great interests of pomology and horticulture in the exhibition. The American Pomological Society is to hold a session at the time of the Centennial celebration, and will co-operate in the matter of fruits. The officers of the new Society are: President, Patrick Barry, of Rochester, N. Y.; Secretary, A. W. Harrison, of Philadelphia; Treasurer, Wm. Hacker, of Philadelphia; Vice Presidents, W. L. Shaffer, of Philadelphia; P. J. Berckmans, of Georgia; J. R. Warder, of Ohio; W. C. Flagg, of Illinois; W. C. Strong, of Massachusetts; and J. Strenzel, of California. A large executive committee was appointed, which includes many of the principal nurserymen and florists of the country.

Horsetail, *Equisetum*—Mare's-tail, *Hippuris*.

Some time ago a correspondent of the N. E. Homestead published an article in which were set forth the generally conceded injurious effects upon horses of the common Horsetail, *Equisetum arvense*. The writer added: "There is another weed, own cousin to the *Equisetaceæ* (?), which is poisonous to horses, and killing them, as I have heard in instances, that is, *Hippuris* (Mare's-tail). The plant resembles in growth the Horse-tail, only it grows much larger, to the heights of two feet or more, and of other proportions." In an item in September last we called attention to this singular assertion, and, to show its absurdity, stated that "*Hippuris* is one of the rarest of plants, and as it grows in ponds, usually entirely under water, horses must be very acute to find it." The correspondent of the Homestead does not like either the manner or the matter of our item, and in a long reply asserts that he is not "college-bred," and a lot of other matter which is of not the slightest consequence, but he makes some statements which he expects us to accept as facts, which are of importance. He quotes a description of *Hippuris* from Gray's Manual, and says:

"I think that neither Gray or the agriculturist professor lived in the Connecticut river valley, or they would have written somewhat differently, for *Hippuris* is found in many towns lying contiguous to the Connecticut river from Hartford north up into Vermont, just how far I do not know, and it does not all grow in ponds and under water either, as almost any farmer there can tell you. I have myself seen on the east side of the river, in several towns, quantities of it growing, and more on moist land, not ponds or springs, than I ever saw growing in water; and as for its growing in Vermont, and horses eating and being poisoned or dying after having eaten it, I have the authority of the farmers who have lost horses in that way, or of some of their friends who were knowing to the circumstances."

Here it is asserted that a plant, usually considered rare, is of very frequent occurrence in the valley of the Connecticut; that it grows out of the water quite as much or more than it grows in it, and that it is poisonous to animals. These three statements are of great interest, not only to botanists, but to farmers, and are widely at variance with our own knowledge of the Mare's-tail; so, as our first botanist had been quoted by the writer in the Homestead, we addressed the following note to Dr. Gray:

"A discussion has arisen with respect to the Mare's-tail, *Hippuris vulgaris*. You will oblige me by replying to the following questions: 1. Are the localities for *Hippuris* in New England numerous? If few, please name those recorded. 2. Is *Hippuris* known to grow otherwise than in water? 3. Have you ever known poisonous qualities to be attributed to *Hippuris* or its near botanical allies?"

To these questions Professor Gray replies as follows: "In reply to your three questions I would say that, 1. I have no evidence before me that *Hippuris* grows in New England at all, as there is no specimen in my herbarium from further east than Northern New York. 2. I never saw it growing out of water. I see it is described as having the tops sometimes rising out of the water. 3. I never heard of its having any poisonous properties."

The whole trouble with the correspondent of the Homestead probably arises from his calling a plant *Hippuris* which is something else. When corrected, instead of consulting with the nearest botanist, he persists in his assertion, gives an innocent and very rare plant a bad name, and states that it is common where it does not occur at all. Under the circumstances we feel warranted in repeating with emphasis the sentence with which we concluded our note in September last, and one which seems to have troubled this correspondent of the Homestead: "A knowledge of their subjects would help these professional writers for the press."

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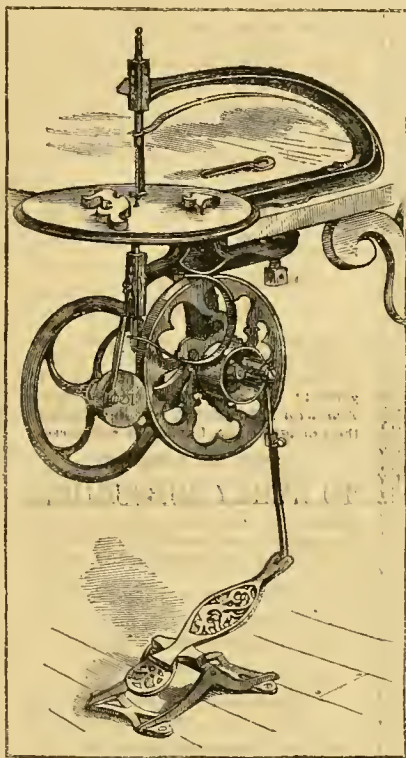
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New York State Fair.

The fair of the New York State Agricultural Society was held at Albany (Sept. 24th to Oct. 11th), upon the grounds of the Albany Art and Industrial Association. These grounds are handsomely laid out, and the buildings admirably adapted for the convenience of the visitors and the comfort of the stock and exhibitors. The fair was a great success. The exhibition of horses, cattle, sheep, hogs, and poultry was excellent. Although there were no "exhibitions of speed," yet there were 250 entries of horses. Amongst the premiums offered for this class of stock there were one for the best stallion for general purposes with five of his produce, and one for the best walking horse. The offer of such premiums is greatly to be commended, and must have a very beneficial effect in the improvement of horses for general purposes. There were nearly 400 entries of cattle, the Jerseys and Ayrshires numbering more than half of the whole, as might be expected in a great dairy state. Shorthorns, Devons, Herefords, Dutch, and grades made

up the rest of the entries. Amongst the entries of sheep and swine we missed the names of some well known breeders, who probably are resting upon their laurels gained in former years. The dairy department was well supplied, and the quality of the butter and cheese shown was especially noticeable for its excellence. In nothing more than this is the advantage of the Jersey and Ayrshire cow to the dairy abundantly shown—the prize rolls and tabs being the produce of Jersey cows, as were also most of the competing ones. The horticultural department occupied a handsome glazed building, in which there was doubtless too much glass, and consequently too much heat for cut flowers, of which there was a splendid collection. Messrs. Vick, Briggs & Brother, and Ellwanger & Barry, all of Rochester, made this department gorgeous with their displays of flowers and fruit. The mechanical department was well filled, and on the whole the society is to be congratulated on achieving a splendid success, richly deserved, however, by the untiring efforts of the indefatigable officials.

The Nebraska State Fair.

The seventh annual fair of Nebraska was held at Lincoln during the first week in September. The whole number of entries was larger than last year, and the attendance about the same. Except in the single instance of agricultural implements, there was no competition from other States. The stock shown was first-class, and would do to exhibit anywhere. Thorough-bred Jerseys, Devons, and Shorthorns—the latter, as is usual in the West, leading in point of numbers—and a few excellent grades were on exhibition.

In the line of pigs Berkshires took the lead, but there were some fine Essex, Poland-Chinas, and Chester Whites in the pens.

There was a large display of agricultural implements, especially plows. Three or four kinds of two-horse corn-planters, any one of them capable of planting twenty acres in a day, two-horse corn-cultivators which cultivate both sides of a row at once, with mowers and reapers, separate and combined, corn-shellers, hay-rakes with which you can rake hay with your horse on a full trot, patent charrus, washing machines, etc., with a goodly number of gentlemanly agents, were on hand to attract the attention of Nebraska farmers. It was rather remarkable, however, that among such a large display of plows there should have been but two gangs—one a breaking and one a stirring plow—and one sulky plow. One of these gangs and the sulky plow were tried on the agricultural college farm, near the fair grounds, on Thursday, in the presence of a large number of farmers, and excited great interest. A grain cleaner, which separated oats from wheat or barley and rye from wheat, was on the ground, and commanded great attention from the farmers; as did a water-heater, with which the inventor claimed to be able to boil a barrel of water with one peck of coals. The fruit display was excellent for such a young State. J. H. Masters, of Otoe Co., exhibited 72 varieties of apples and 23 varieties of pears grown in his own orchard; S. B. Hobson, of Cass Co., 46 varieties of apples; Joel Draper, of Otoe Co., 23 varieties of pears and 10 of grapes; and Mr. A. Rohner, of Washington Co., 31 varieties of apples. Besides these there were many other smaller collections which there is not room to enumerate.

Two public addresses were made during the fair, one by Hon. J. Stirling Marton, of Nebraska City, and the other by Mrs. Matilda Fletcher, of Iowa. Both were excellent efforts, and highly admired.

The fair grounds are situated half a mile north of the city of Lincoln on the line of the B. & M. R.R., and as the railroad, with characteristic liberality, put in a switch and stopped all trains at the grounds during the exhibition, the best opportunity was offered for getting articles to and from the grounds.

Western New York Fair.

Although a little too much "horse," the Western New York Fair, held at Rochester, September 16-19, was very creditable to the farmers of that highly favored section. Here, as at nearly all the fairs we have attended this year, the poultry department was well filled and attracted much attention. The show of cattle was not what we should have expected from the Genesee Valley. There were, however, one or two fine herds of Shorthorns and some good Jerseys and a few Ayrshires and Devons. In sheep the long-wools predominated, but with the exception of some superior Cotswolds, shown by Mr. Ward, of Leroy, there were very few pure-bred long-wooled sheep. They were mostly "Canada sheep" of a very mixed character. There were a few choice South-Downs, and a fine display of Merinos. There was an unusually fine show of swine, especially of Berkshires. Only a few Essex were shown, but these were good. The Cheeshires and Chester Whites,

once so numerous, were poorly represented. There was but one pen of Poland-Chinas, containing only one pig. He was a good strong pig, but rather coarse as compared with Essex and Berkshires.

There was a grand display of agricultural implements and machines. The exhibition of fruits and flowers was what we should expect from Rochester. We were sorry not to see Mr. Vick. He was attending some of the more Western fairs, and did not exhibit at Rochester. Another thing to be regretted was the comparatively few amateur exhibitors.

There was a good show of grains and vegetables. We were particularly pleased with a fine barrel of pure Diehl wheat, grown by Mr. Spencer of North Chili. Mr. S. had also the good sense to show a bunch of ears and straw of his wheat. The adjoining barrel was said to contain a comparatively new variety of white wheat, but the exhibitor had headed it up, and the superintendent seemed to be afraid to open it. All we can say of that barrel of wheat is that the barrel was well made of good elm staves, the hoops were strong, and the head fitted nicely in the groove. Hundreds of people passed it and doubtless admired it. We stood and looked at it for some time. There was a fascination about that barrel. There was a piece of paper stuck on top telling how many bushels of wheat per acre Mr. So-and-so had grown this season. This was useful information; but it was the barrel that interested us. It had a neat and tidy look. It seemed conscious of its dignity. The other barrels were all uncovered before it. It seemed to expect the first prize, and we presume it got it. At any rate, we are happy to state that the barrel was a very superior barrel. We do not say that, having once seen it, we would go from New York to Rochester to see it again; but we think that all the visitors at the fair who were interested in Genesee wheat must have been as much gratified with the appearance of that barrel as we were.

Ogden Farm Papers.—No. 45.

Since the last number of these papers was written I have made a hasty tour of Holland and Belgium, and am now about leaving France for the island of Jersey. While it is especially desirable not to turn this series of articles into a book of travels, there is a temptation to give a somewhat detailed account of the many things one sees every day which are new and interesting to a farmer, and some of which will probably be as valuable to the readers of the *Agriculturist* as anything that home experience can suggest. Our heads are now turned homeward, and it will probably be many a long year before the regular course of our humdrum home life will be interrupted by another trip to Europe. In view of this fact it may be excusable to say something of European farming, as is seen by the hurried traveler.

We were in Holland less than two weeks, and it may seem absurd to base any expression of its agriculture on such a superficial view; but Holland is a land to strike one with amazement at the very first glance, and the amazement increases with every day's observation. In most countries it is the office of man to subdue the soil and bring it into condition to support a civilized community, and this task is often hard enough. In Holland it has been the office of man to subdue the sea and cause it to withdraw from the marshy beds and broad lakes of which it had so long held possession; and then to make on the soil thus created a field for the most profitable industry, and a home for a people which in many respects is the most remarkable of the world.

We pride ourselves, and justly, on the energy which has sent our pioneers into the forests to turn the virgin fertility of their soils into the useful channel of profitable production; but what shall we say of a race which has grown up on the spongy islands at the mouth of the Rhine, driving the waters back foot by foot, and after hundreds of years of incessant toil and patient waiting (interrupted by eighty years of the most cruel religious war, during

which they had to call their old enemy the sea to their aid and submerge whole districts under a waste of water to keep them from the possession of their new enemy the Spaniard) showing to the world a prosperity and an accumulated wealth that have no equal in Christendom? In some regions, after the waters had been inclosed within ponderous dykes and then pumped out by windmills, there were developed only vast beds of barren peat several yards in depth. This was cut into blocks and piled up to dry, preparatory to being sold for fuel; the vessels which took it to market brought back the accumulated refuse of the towns, and this was used to make a fertile soil in place of the infertile one that had been removed. Thus the former abodes of fishes are now the seats of the most prosperous agriculture of Europe. A map of the province of North Holland, made three hundred years ago, shows a bare network of marshy land, protected from the North Sea by a range of sand-hills, and inclosing within its meshes vast bodies of navigable water—the mere outline of a country entirely unpromising for habitation and afflicted with a most rigorous climate. This whole province is now a smiling, fertile land, busy with every form of industry, and one of the great centers of the world's prosperous activity. In a few years, when works now in hand shall be completed, there will remain no water within its wide boundaries, save in the embanked canals, where, high above the level of the fields, the lifted waters flow to the sea and afford channels for the vast commerce of the country. Arrangements are already being made for the drainage of the Zuyder Zee, a work which will cost over \$50,000,000, and which will take twelve years for its preparation alone. When the enormous dyke shall have been built, and new channels shall have been made for the rivers which flow into it, it will take the sixty-three enormous steam-engines several years (working night and day) to pump out its water, which has an area of about 500,000 acres, and an average depth of about ten feet. A survey has been made of the whole bottom, and the plan of improvement includes the division of the land and the construction of the canals (for drainage and for communication) which are to serve the future generations who are to inhabit it. This scheme would seem wild and impossible were it not for the experience with Haarlem Lake, which lies within a few miles of it. This magnificent farming district was only twenty-five years ago a navigable sea about sixteen miles long and seven miles wide. It lay between the cities of Amsterdam and Haarlem, its surface nearly level with their streets, and threatening them both with destruction during heavy storms. As a measure of safety it was determined to annihilate it. It was surrounded with two immense dykes over thirty miles long, inclosing a canal, and three engines with a combined force of 1,200 horse-power were set at work to pump out its waters. At the end of 3½ years of incessant activity its bottom was laid dry, and now its 45,000 acres, lying about fourteen feet below the level of the sea, are busy with the production of food for the cities which the lake so lately menaced.

We made a visit to one of the older drained lakes (the Beemster), which was drained about 250 years ago, and has ever since been one of the richest dairy regions of Holland. It contains about 17,000 acres, and lies about twelve

feet below the level of the sea. It is surrounded by a canal, by which its water is carried away, and into which its drainage is pumped by 54 enormous windmills—working only in the winter and after heavy rains. In its center is a neat old Dutch village, and the small farms into which it is divided are approached by perfectly level roads, which—like most country roads in Holland—are paved with hard-burned bricks. Nearly the whole area is in grass, and the chief industry of the farms is the production of those round Dutch cheeses (weighing about four pounds) which are known in the cities of the whole world, and which we saw piled up like cannon-balls in the squares of the towns on market days. We passed some hours at the farm of Mr. Wouter Sluis, who kindly showed us his whole establishment. He has about 128 acres, which he values at \$500 per acre. He plows only twelve acres each year. All the rest is kept in clover and grass. His fields are divided by the ditches, which serve for the drainage and for the transportation of hay and manure in boats. His stock consists of 45 cows, 24 head of young horned stock, 5 horses, 160 sheep, and about 40 swine. He uses some improved machinery (which all Holland gets from England), and his sheep are crossed with prize animals from the English exhibitions. The cows are of the much-prized Dutch breed—which are wrongly called "Holstein" in America—and capital animals they are for a cheese dairy. They were mainly very fine specimens of the breed, and some of them were as good as it has ever been my fortune to see. I was interested to see that he attaches great importance to Guenon's "escutcheon" or "milk-mirror" system, and considers it an infallible index of the milking value of his stock, and he sends to the butcher such of his calves as, measured by this standard, are inferior.

The cows are fed entirely on grass (pasture) in the summer, and entirely on hay in winter, save for a very small quantity of roots. The hay is very short and fine, but the yield is over two tons to the acre. The rotation is very simple. There are about 50 acres of mowing land and about 65 acres of pasture. Each year about 12 acres of the pasture is plowed (for caraway seed, mustard seed, or other money crops), the same area of mowing is added to the pasture, and the previous year's plow land is converted to mowing. The haying is between June 15th and July 15th, and the aftergrowth is used for pasture.

Most of the vehicles and the more common implements of the farm are of the rudest and most primitive sort, such as no one of us would think fit for use; yet everything indicates that the work is well and promptly done. The cheese-making is carried on in a dark-looking old room, and the apparatus is probably the same as has been in vogue on the farm for 200 years. At the same time everything was scrupulously clean, and the product bears the highest reputation in the local market, which is a large one and is frequented by the wholesale dealers. I do not know enough of our own manner of cheese-making to say wherein the Dutch system differs from it; but I do know enough of the quality of the article when brought to the table to consider the Dutch cheese well entitled to its higher price. So far as I could judge, there is nothing in the cattle, in the forage, nor in the process of manufacture which should prevent us from making the same article, and supplying our own markets with a kind of cheese which is now imported very largely.

One thing about this farm (and the same is true of nearly all farms in Holland) strikes the American eye very oddly. There was but one building of any importance on the whole farm—an enormous broad-roofed building, with a “hooded” gable at the front end, and all covered with red tiles. The front part is the house—spacious and comfortable, and with some rare bits of old furniture and Japanese pottery, and some fine books, which gave it an air of decided interest. Back of this (and opening into it), occupying the whole width of the building, was the cow-stable, with two rows of mangers and water-troughs flanking a central alley which is floored with bricks. The water-troughs are simply depressions or gutters at the sides of this alley, and are also of brick. They are filled from a pump at one end, and the water is let off (at pleasure) at the other. The cows stand on a raised earthen floor, which has a brick wall to support its rear part. Behind them is a deep manure trough, which retains the solid droppings and allows the urine to flow to a liquid-manure cistern, which accumulates all the liquid refuse of the establishment, and which has a pump for filling the tank cart for sprinkling the meadows. During summer, when the cattle are constantly in the field, the earthen floor is covered with handsome Dutch tiles. At the time of our visit this stable was so scrupulously clean and bright that we mistook it for a huge milk-room.

Back of the stable (in the loft over which the cheeses are seasoned) are the hay loft, the cheese factory, horse stables, wagon house, tool sheds, etc. To our American ideas, this close contiguity of stable and dwelling seemed at least odd, but it is the universal custom in this almost absurdly clean and well washed land, even among the wealthiest farmers, and there are many who count their riches by hundreds of thousands. Indeed, in some of the richer parts of Friesland and Groningen, the evidences of prosperity take a very absurd form. It is not unusual to find two fine pianos in the house, though there is no pretense of allowing the daughters to learn to play them (they are needed in the dairy); and it is said that some of the rich colza growers use silver tea-kettles and gold table-service—using them in the rude mode of life to which they have been bred, and which they would scorn to change for anything more refined. They love to surround themselves with the evidences of wealth, but they seem careless of the real advantages that it is the legitimate office of wealth to secure. Indeed, the Dutch farmer, in his barbaric way, has some of the peculiarities of some of the farmers of other places which shall be nameless. He fancies himself to be personally more admirable than he would if he knew more of the outside world; and he attaches undue importance to the simple possession of much money.

I think that in the processes of agriculture, and especially in the matter of farm implements, we could teach the farmers of Holland more than they can teach us. At the same time, in the two arts of making cheese and (most important of all) of getting an immense yield from small areas, we might with advantage sit at their very feet.

As farmers and as a people we *can* learn from them one lesson of the utmost value—that is in the matter of making the waste wet places of the earth to blossom like the rose. The hundreds of thousands of acres of marsh lands along our sea-boards and our river bottoms

need far less outlay than the Dutch morasses to rival the wonderful fertility to which they have attained; and we can learn from them the best manner of making the reclamations.

The Transportation of Grain.

In the division of labor, which is a necessity in a civilized community, it becomes the part of one class to produce food and of another to distribute it. Without the producer the distributor or transporter of produce could not exist, and without the transporter the producer would be entirely helpless in the midst of an overwhelming abundance. Surrounded with his useless crops he would want for every other necessary of existence, and he would at once descend to the condition of a savage—even be restricted to eating the simplest food and drinking water. Being thus mutually dependent it is necessary that the producer should know exactly the whole duty performed by the transporter, that this latter may not be considered as an interloper who taxes the labor of the farmer and mulcts him of a portion of his hard-earned remuneration without giving an equivalent for it. In this article we propose to follow a cargo of grain from the western gathering point until it is fairly launched on its sea voyage to supply our customers in Europe.

In the first place, no intelligent farmer supposes for a moment that it would be possible for him to seek these customers himself, or that it would be possible to ship a small cargo of grain 5,000 miles without entirely eating up its value in expenses or cost of transportation. This business must be done in bulk and on the largest scale to be done at all. The comparatively insignificant crops of even the largest farmers must be gathered together from a thousand points, and all be brought to a great shipping center. Just as a thousand rills tend towards one stream, and that with a thousand others to the great ocean, so a thousand streams of grain constantly flow from local sources, the farms being the springs from whence they rise, and the smaller elevators at the local stations along the railroads being their gathering points, whence they flow to the great shipping points of Milwaukee, Chicago, and St. Louis, these again all flowing towards the Atlantic. The millions of bushels there gathered into the immense elevators from the railroad cars are either stored to await facilities for shipment or are at once transferred to the Lake vessels, either sail vessels or steam-ships, and started upon their Eastern voyage. A very large portion of the Western grain goes through to the Atlantic ports by railroad cars, but the largest portion of it passes by way of the lakes through Buffalo and the Erie Canal, although this avenue is closed for several months in the year. The cost of shipment from Chicago to Buffalo is this season 15 cts. a bushel for wheat or corn, and the charges at Chicago incident to the passage of the grain through the elevators are 3½ cts. Arrived at Buffalo the grain is transferred from the vessels to the elevator or directly to the canal boats at a cost of 1½ cent more. The method of this transferring is shown in fig. 1. When on board the canal boats it is started on its winding way slowly towards New York (fig. 2) at a further cost of 12½ cents per bushel. The repeated transfers, although they cost a few cents for the handling of the grain, are an advantage rather than otherwise. Grain in bulk is apt to heat and mold and become seriously damaged or unfit for use as food. The

repeated transfers obviate this difficulty, and not only aerate and dry the grain, but in its passage through the elevators it is passed through screens and blowers by which much dirt is removed from it. The total cost between Chicago and New York is thus seen to be 32½ cents, although large shipments are often contracted for at less rates; for instance, only very recently transportation of a lot of 20,000 bushels was contracted at 29 cents a bushel, and 27 cents was paid for another large lot. But one serious feature of this business of transportation consists in the delays necessary. Recently 1,600,000 bushels of grain were awaiting transportation at Chicago, and the voyage on the Erie Canal usually occupies three weeks. However, the delays upon the canal and the slow progress made are very often less than upon railroads at this season, when business is crowded. Besides, the boat carrying 8,000 bushels is a much more convenient method of carriage than a railroad car carrying 400 bushels. One boat is equal to a train of twenty cars, and the train generally becomes separated on the way, rarely coming through whole, and in this way the more rapid railroad transit is often the slower of the two in the end. In fact, the value of the Erie Canal to the Western farmers is very much underestimated. On it their existence mainly depends. Without it their vast crops would lie rotting on their fields. If the present railroads were more than doubled they could not take the whole grain shipped eastward. Since its opening, twenty-three years ago, the Erie Canal has carried nearly 120 millions of tons of freight, which is nearly double the amount of the whole tonnage of all the vessels from foreign countries which have entered New York in the same period, and is nearly three-fourths of all the foreign tonnage entering all United States ports in that time. The canals of New York are on the whole 900 miles in length, and the railroads are four times as long; yet in 1872 the canals in 7½ months of navigation carried 48 per cent of the whole freight passing through the State, while the railroads in 12 months carried 52 per cent. What the West would do then without the canals of the State of New York is very difficult to imagine, and these facts open up a matter for consideration which is of the greatest importance at this time, when this vast question of transportation is under discussion.

After its slow but sure progress through the canals the grain reaches New York, and on its arrival, which has been already calculated for to an hour by the shipper there, who has been informed all along of its daily whereabouts, it is either taken to the elevators at the Erie basin for storage, or is gathered, together with other boatloads, into a “tow” by a steam-tug (fig. 3) and moved to the ship which already lies at the dock awaiting it. In this latter case a floating elevator is employed (fig. 4). This is an unwieldy, top-heavy looking machine built upon a steam vessel, the engine of which both moves the vessel and works the elevator. Here, ranged with the barge on one side and the ship on the other, this elevator raises the grain from the hold of the barge, cleans and winnows it once more, and passes it by means of a long spout into the hold of the ship. Barge after barge is brought up and emptied, until one or two thousand tons are transferred to the vessel's hold. There it is fastened down by a covering of planks and timbers so that the rolling and pitching of the ship may not cause it to move so as to disturb the vessel's

"trim," and it leaves our shores on its final voyage of over 3,000 miles. The cost of this voyage depends greatly upon the supply of ships. It must not be supposed that this question of transportation ends with the arrival of the grain at New York, Boston, or any other seaport. On the contrary, were the canals and

every cent thus paid in freights reduces the price paid to the farmer at his local elevator in the West, or adds to the cost of the loaf purchased by the European artisan. It is an absolutely necessary cost, and can not be avoided any more than the cost of plowing the soil or procuring the seed. In whatever way it may

elevators belong to the New York Grain Warehouse Company, and have a total capacity of 8,000,000 bushels. One of them is seen in fig. 5, and is a counterpart of all the rest. Here the barges are unloaded, and the grain carried up by spouts into the top of the building, where it is screened and sifted first through a

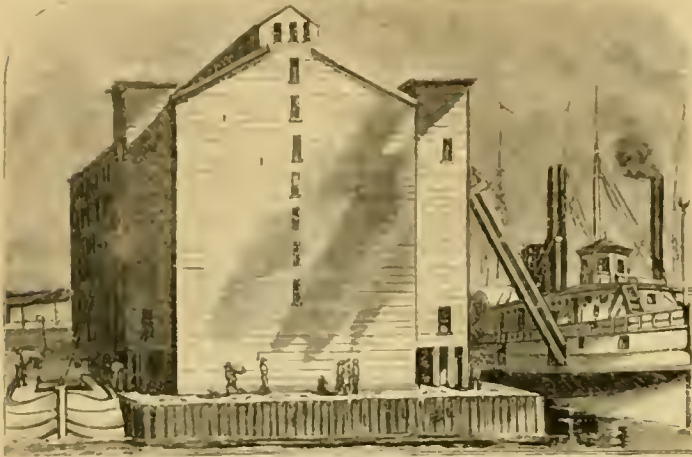


Fig. 1.—TRANSFERRING GRAIN AT BUFFALO.



Fig. 2.—ON THE ERIE CANAL.

railroads or their capacity instantly doubled it would not help the matter just now in the slightest. There is a scarcity of ships. Europe wants 150 million bushels of grain or less or more before next harvest. That quantity would load 5,000 ships of 1,000 tons each. A very little figuring would show that this would require 16 ships to be loaded and dispatched every day for the next ten months. They are not in existence just now, or at least are other-

be reduced, a clear gain is made to the producer, and to effect the desirable reduction is as legitimate and proper an object for him to strive for as the reduction of the cost of his farming operations or of his plows and reapers, and this item of supply of ships should not be lost sight of in considering this question. For want of the necessary ships the grain often goes to the elevators to be stored for a time. These are situated at what is known as the

fine screen (fig. 6), where it is freed from dust, and afterwards through a coarse screen (fig. 7) in which it is separated from all larger matters. Here there are recovered various strange articles which have been lost by farmers in a manner that seemed to them mysterious. Sometimes a watch, a pocket book, hammers, nails, boots, shoes, pencils, or other things the absence of which the owners vainly try to account for, are here discovered. After being cleaned, the



Fig. 3.—GATHERING THE TOW.

wise employed. Therefore, as we understand, all the ships capable of carrying grain are engaged up to December, and were so even early in September. The freights therefore are high, and fourteen pence sterling, or about thirty cents per bushel is the cost of transportation from New York to Liverpool. Of course,

Erie Basin on the Brooklyn shore of the East River, where the canal barges are gathered after their voyage from Buffalo. These elevators have a capacity of 14 million bushels. Many vessels are loaded at the elevators, and a vast amount of shipping gathers about them in the course of a season. The largest of these

grain is run into a weighing hopper (figure 8). This is connected with a scale which indicates by an index the quantity of bushels run into the hopper. When the required quantity is run in, a cord is pulled by which the stream of entering grain is stopped; the bottom of the hopper is opened simultaneously, and the grain

is poured into spouts which convey it into bins if it is to be kept separate, or into the grain aisles if it is to be bulked. Here (fig. 9) it remains until run by spouts into the vessels for

ments of the Western producers. That more shipping is necessary to prevent expensive accumulations at the various Atlantic ports. That some improved mode of carrying grain

spect. In so far as the public, of which they are the most important class, are injured by the extortions of railroads, they have their remedy in influencing the requisite legislation. It

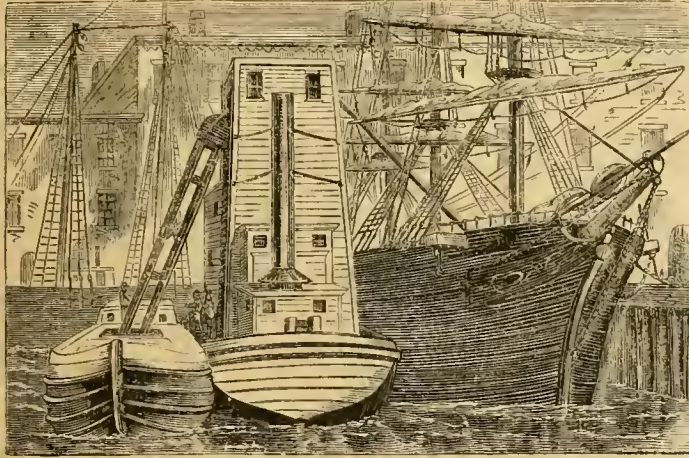


Fig. 4.—FLOATING ELEVATOR.

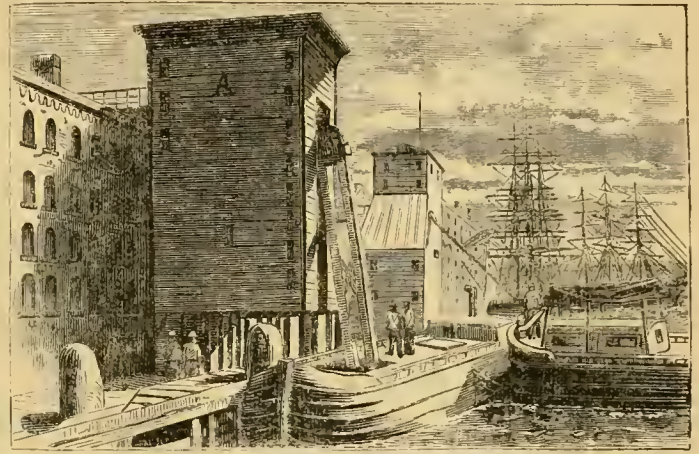


Fig. 5.—ELEVATOR AT NEW YORK.

final shipment. For this cleaning and storage a charge of a cent and a half per bushel is made for the first ten days, and one-quarter of a cent for every ten days thereafter.

After thus relating the history of the trans-

whereby it may be ventilated and prevented from heating is needed to avoid the present costly transfers. Finally, by means of the completion of the enlargement of the locks of the Erie Canal—the passage of larger boats able to

is the happiest feature of our social condition that no one class can conspire to tyrannize over the others, and that public opinion will always support the right in its strife against wrong, and that when public opinion is aroused it is

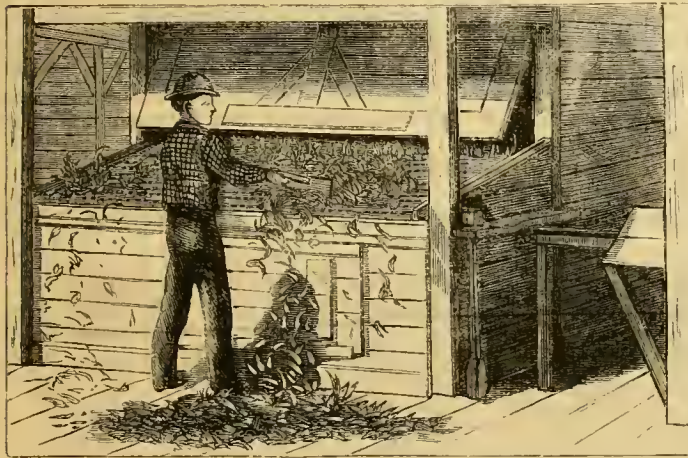


Fig. 6.—SIFTING THE GRAIN.

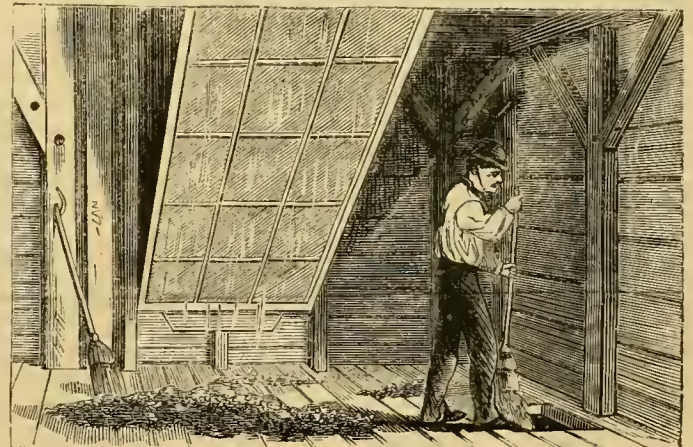


Fig. 7.—THE COARSE SCREEN.

portation of grain there occur to us the following suggestions. It is abundantly shown by the facts here narrated that water carriage in bulk is by far the cheapest mode of transportation. That the railroads, as at present

carry eighteen to twenty thousand bushels of grain at a much less proportionate cost per bushel—the capacity of this indispensable route shall be at least doubled. To secure some or all of these improvements in the transportation

always able to effect such ends as are proper by the most legitimate methods. In this way will this question be settled; but it must not be forgotten that the present state of things has arisen mainly from the excessive expansion of popu-

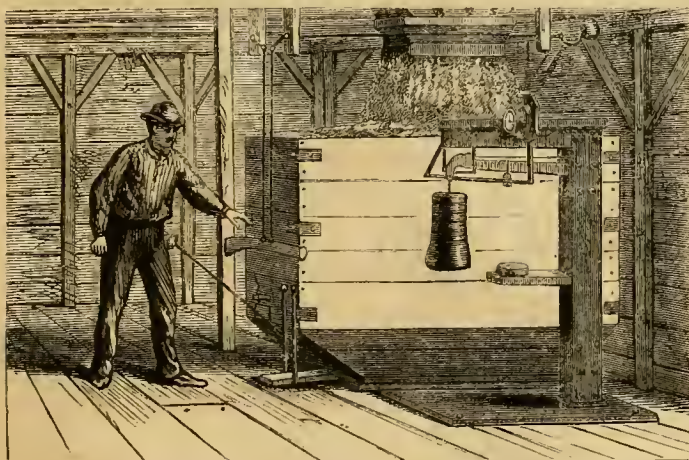


Fig. 8.—WEIGHING HOPPER.

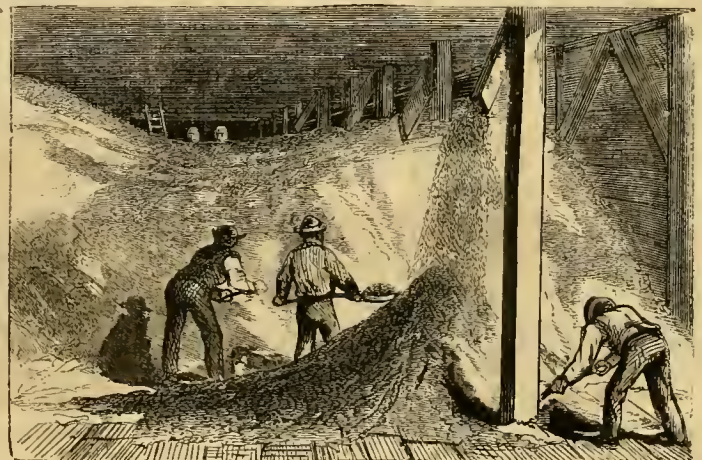


Fig. 9.—A GRAIN AISLE IN THE ELEVATOR.

existing, at best are but aids and helps to what should be the chief reliance for the removal of grain. That a thorough route devoted entirely to heavy traffic is needed to meet the require-

of grain our attention should at once be turned. There is no more legitimate business conceivable than that farmers in their collective capacity should work for a reform in this re-

lation in the great West without a corresponding enlargement of the outlets at the East; and that these outlets need enlargement to restore a wholesome competition between them.

Walks and Talks on the Farm.—No. 119.

Our wheat crop in Western New York was so poor this season that it is pleasant to hear of a good paying crop. Mr. I. K. Ragland, of Cooper Co., Mo., writes me that their best lands will produce in good seasons from 20 to 30 bushels of wheat per acre. "I had," he says, "from 100 to 105 acres in wheat this year, and it thrashed out 2,855 bushels, or nearly 28 bushels per acre, and I lost a good deal of it by its being badly lodged. I used no manure of any kind, and not one farmer in a hundred ever hauls out a load, and in consequence our lands are fast wearing out, and we shall have to change our system soon or hunt new lands. I keep my land up with clover, which I find all sufficient. Our corn crop this year is light, owing to the drouth. Our usual crop is from 40 to 60 bushels per acre."

What a grand opportunity such farmers have to raise choice stock for breeding and other purposes. One of the principal difficulties in raising such stock is in procuring succulent food in winter. We can raise just as good mangel-wurzel in this climate as they can in England. With me the only trouble is to get manure enough without robbing the rest of the farm. But in a country where "not one farmer in a hundred ever hauls out a load" it would be an easy matter to put manure enough on a good-sized field to produce 40 or 50 tons of mangels per acre. I wish I had such a chance.

I would take a good, clean corn stubble, plow it this fall, and during the winter I would haul out all the well-rotted manure I could get and spread it on the land. Plow in the spring, harrow thoroughly, roll, and then drill in the mangel seed with a grain drill in rows from 28 to 36 inches apart. Roll again after the drill. Cultivate thoroughly, and thin out the plants 12 to 15 inches apart.

"You can do all that here," remarks the Deacon, "just as well as you can in Missouri."

Certainly I can. But the trouble here is to get the manure. There the stuff goes a-begging. And this is the point I want to make. It requires no more seed and no more labor to grow a crop of 50 tons per acre than a crop of five tons. And then in harvesting it will require not one fourth as much labor to gather 50 tons from one acre as it would to gather 50 tons from 10 acres.

"But," says the Deacon, "I thought you contended that a crop of Indian corn was more nutritious than an acre of mangels?"

I have said that if we made our land as rich for corn as we do for mangels, and cultivated as thoroughly, we should get nearly or quite as much nutritious matter in the corn and stalks as from a crop of mangels.

Let us not wander from the point. What I wish to say is this: If I lived in a section where manure could be had for the hauling I should raise thorough-bred stock and should grow large quantities of roots for them. I do not say that I could fatten hogs any more cheaply on mangels than on corn. But with a liberal allowance of mangels in March, April, and May I could keep my breeding sows in a healthy condition. They would give more milk, and I could raise better pigs than where the sows have to be fed principally on grain. With cheap corn and a good supply of mangels for winter (especially for the spring months), and good clover and grass pastures for summer and autumn, supplemented by a few acres of

mustard or vetches, there would be money in the pig-breeding business.

The same is true of sheep and cattle. The fact that we have to import such immense quantities of wool is a standing disgrace to the farmers of the United States. I have little respect for the intelligence of the man who tells me that good combing wool can be produced on the west side of the Niagara River but not on the east side; or that it can be produced on the east side of the Detroit River and not on the west side.

The Prairie Farmer last week quotes cattle in the Chicago market all the way from \$1.50 to \$6.30 per 100 pounds, live weight. The Prairie Farmer is an earnest advocate of the "Patrons of Husbandry," and is down on all monopolies. It does not say whether there is any corporation or ring that has a monopoly of these "choice, graded steers." Were such the case the Patrons could add another item to their list of grievances. The railroads, I presume, charge no more for carrying a car-load of these choice steers than for a car-load of the "rough, green natives" or Texans. In other words, they charge no more for carrying a car-load of cattle worth say \$100 a head than for a car-load worth only from \$10 to \$15 per head. Is not this unjust discrimination?

Seriously, is it not time that we made an earnest effort to improve our system of agriculture? The best way to fight the railroads is to ship less corn and fewer "scallawag" cattle. Put the corn into good pork and good beef. The demand for good meat is greatly on the increase in all parts of the civilized world. We shall never raise too much good beef and mutton. We ought also to grow at least all the wool we require. Let the Patrons and the farmers' clubs and the agricultural press turn their attention to this subject. It is in this direction that we must look for any real improvement in our condition. We shall never get rich by shipping corn to Europe.

Mr. Rich, of Delaware Co., Ohio, asks my opinion in regard to cooking shelled corn for hogs. "Do you think," he writes, "that they like it as well as they do uncooked? It seems to me they do not eat it with the same relish they do hard corn. And some of the corn will about spoil before it is eaten unless we cook often and in small quantities. I sometimes feel disappointed, as I have been to the expense of putting up a steamer and a heavy corn-sheller run by four horses, and after all my hogs do not seem to eat the soft corn as well as they do hard. Can you tell the reason, or is it my imagination? Another objection is, that feeding in a large pen, the weaker ones are afraid to come to the trough, and will stand outside and look on until the corn is all gone."—Put in more troughs and let them have all the corn that they can eat.

"I am now," he continues, "feeding 170 hogs. I fed them hard corn in my clover field all summer, but in August I put 30 of the largest in a pen, and have been feeding cooked corn."—I presume, if they are a quiet breed of hogs, they would have done a great deal better in a good clover lot, with all or nearly all the hard corn they would eat, than they would shut up in a pen and fed cooked shelled corn.

Mr. R. says he "has read a great deal about feeding hogs, and all went to prove the profit of cooking."—For my part, I never believed all the stories that are told of the advantages

of cooking. Far more depends on the skill and judgment of the feeder than on cooking the food. I am inclined to think, however, that Mr. R. does not half cook his corn. I judge so from his remark about having to cook in "small quantities." I use the same steamer that he does, and 30 good hogs would eat corn almost as fast as I could cook it for them. Certainly I should not wish the job of cooking corn thoroughly with it for 170 hogs.

When corn is as cheap as it now is in the West I do not think I should cook it or shell it for fattening hogs. For young pigs, say from three weeks to three months old, I think it will pay to grind and cook corn. Such pigs, if well-bred, can assimilate more food than they can digest. But common hogs, from nine to fifteen months old, as a rule, will eat and digest all the raw corn that they can assimilate. And if this is the case, of course there is nothing to be gained by cooking.

I would suggest to Mr. Rich if he continues to shell and cook his corn to soak it for 24 or 48 hours before cooking, and then cook it until it will mash up into a paste. Let the pigs eat all they will of this, three times a day, and after each meal throw them all the ears of corn that they will eat up clean. The probabilities are that they will in this way eat more corn than they would if fed on either cooked or uncooked food alone. If it is found that they void more of the corn undigested, mix say a bushel of bran with each bushel of shelled corn when it is put to soak, and cook the mixture as before.

One would think from the prominence that is given to the subject by agricultural writers that *cooking the food* was the one thing necessary to success in fattening hogs. Here is a letter from a gentleman in Springfield, Ill.: "I wish to ask your judgment about a plan I have of feeding hogs on a large scale, which seems to me from all the knowledge and experience I can get from others to be feasible and very profitable. My plan is to erect sheds sufficiently large to hold 300 hogs. Get an engine, shell and mill and grind and cook corn meal for them. Buy hogs weighing 125 lbs.; keep them 70 days, when they ought to weigh 275 lbs. Sell them and fill the pens again, and do so through the year, making from 1,200 to 1,500 hogs for the year. Hogs can be bought at four cents per pound; corn at 30 cents per bushel. By buying at four cents and feeding 70 days, and selling at four cents, there seems to be a large margin for profit."

Judging from the general style and tone of the letter the writer is an educated city gentleman engaged in some business or professional pursuit. He has a taste for agriculture, and is an interested reader of agricultural books and papers, but he has had no experience in feeding hogs. He evidently believes the stories told in regard to the great advantages of cooking food. I do not say they are not true, but I do say to him, very earnestly, "let the business alone." If farmers are sending their hogs to market half fat let them go to market. If it will not pay the farmers to fatten them on the farm it will not pay you to fatten them in the city, unless you want manure, or have food that will otherwise go more or less to waste. It would probably take the hogs two weeks to get over the effect of their journey and to settle down quietly to eat and fatten. And instead of gaining 175 lbs. in 70 days, I should expect 300 ordinary hogs in such circumstances to gain on the average not over 70 lbs. Then

again, this gentleman would find it an easy matter to buy the engine and sheller and mill, and easy enough doubtless to buy the hogs. But he would find it not so easy to get a man to attend to them. And this is the vital point. I find little trouble in getting men that can plow and hoe, bind wheat, and cut up corn, but it is rare to find a man who can be trusted to take care of animals. It is not safe to make calculations on getting corn for any length of time in Indianapolis for 30 cents a bushel. I should not be surprised if a year from now it was 60 cents. The price of a great staple like corn does not long remain below the cost of production.

The Deacon acknowledges that I beat him on corn this year; but he contends that "every dollar's worth of corn you raise costs you two dollars."

"I won't dispute that, Deacon," I replied; "but if it does, how much does it cost you? Let us figure a little. My corn this year is on a badly run-down field. It was very weedy and very stony. It was a clover sod. I plowed it last fall and again this spring, getting out all the stones we could. It was then harrowed two or three times, rolled, and then the corn was drilled in $3\frac{1}{2}$ feet apart with a grain drill. It was harrowed four times after planting with Thomas's smoothing harrow; cultivated nine times. We went over the whole field once with the hoes, and part of it twice. The expense would be about as follows:

Fall plowing with three horses.....	\$3.00	per acre.
Spring plowing.....	3.00	" "
Harrowing three times.....	1.00	" "
Rolling.....	.25	" "
Drilling.....	.50	" "
Harrowing four times with smoothing harrow.....	1.00	" "
Cultivating nine times.....	3.75	" "
Hoeing.....	1.50	" "
Cutting up corn.....	2.25	" "
Husking—six cents per bushel of ears.....	8.40	" "
Drawing in stalks, etc.....	1.35	" "
	<u>\$26.00</u>	" "

"It has cost you more than that," says the Deacon. "I saw you in the field several times last fall and this spring with three or four men and a four-horse team."

"True. We were getting out some big stones. I know you do not like my four-horse whippetree; but I can not see the sense of straining a pair of horses while there is another team in the field. But never mind that. It is hardly fair to charge the expense of getting out stones to the corn account. I look upon it in the light of a permanent investment, and charge it to the cost of the farm. Now, Deacon, what has your corn cost you?"

"Not half what yours cost you."

But let us see. The account will stand something like this:

Plowing once.....	\$3.00
Harrowing.....	2.00
Planting in hills by hand.....	1.50
Cultivating.....	3.00
Hoeing.....	2.00
Cutting up corn.....	1.50
Husking—six cents per bushel of ears.....	3.60
Drawing in stalks, etc.....	1.00
	<u>\$18.60</u>

"But," says the Deacon, "you charge only \$3.75 for cultivating your corn nine times, and charge me \$3.00, and we only cultivated our corn twice."

"Exactly; but you went twice in a row each time, and both ways of the rows; and this is equal to going eight times once in a row one way."

This seemed to be a new idea to the Deacon. He has always laughed at me for cultivating my corn so many times. He did not like to have it shown that it costs him as much to cultivate his corn twice as it does me eight times. But he could not deny it.

"It pays," he said, "to go twice in a row and both ways. It saves a good deal of hoeing."

"That is undoubtedly true, Deacon," I said, "but I am sure that harrowing the corn three or four times will be still more effective in killing weeds and saving hoeing. I am not saying anything against your system, however. All I want to show is that if a dollar's worth of corn costs me \$2.00 it costs you still more."

"Even according to your own figures," said the Deacon, "it costs you \$26.00 per acre and me only \$18.60."

"Exactly; but look at the difference in the condition of the land. Dr. Miles and Mr. Phillips of Michigan were here when we were cutting up the corn, and Mr. P. said it was the cleanest piece of corn he ever saw."

"It is clean," reluctantly admitted the Deacon, "but I tell you such farming won't pay."

"Perhaps not, Deacon, but if it will not yours certainly won't. Let us figure out the results.

Your corn will be about 60 bushels of ears per acre, worth say 30c., or.....	\$18.00
1 $\frac{1}{2}$ tons of stalks, @ \$10 per ton.....	15.00
	<u>\$33.00</u>
Expenses.....	18.60
	<u>\$14.40</u>

My corn, I think, will go 140 bushels per acre, worth say 30c. per bushel.....	\$42.00
Three tons of stalks, @ \$10.....	30.00
	<u>\$72.00</u>
Expenses.....	26.00
	<u>\$46.00</u>

"But," says the Deacon, "you have said nothing about rent and taxes."

"True; and if I were you I would say nothing, for you value your land higher than I do mine. If we call the rent and taxes \$10 per acre, the profits on your corn would be \$4.40 per acre and on mine \$36. Not a bad showing, Deacon, for a little extra cultivation."

Our conversation was here interrupted, but I presume the Deacon will have something else to say on the other side, and if so I will faithfully report it.

Stable Floors.

Upon the proper arrangement of the floors of stables depends much of the comfort of the stock and economy in saving manure. Nothing is more detrimental to the health of farm animals than foul earthen stable floors. They are saturated with liquid manure, they are always damp, an unhealthy moldy smell constantly pervades them, and millions of the germs of possibly poisonous fungoid growths are constantly inhaled. It is no wonder that there are in consequence constant blood disorder or bronchial or lung diseases. Besides, the appearance and the comfort of the animals are sacrificed, because cleanliness is impossible under the circumstances. We very early in our experience discovered this, and for many years were constantly experimenting to discover the best stable floor. There are two of which we can hardly determine which is the better. One of these is a double plank floor. The bottom plank is of hemlock—which is as good as any if

kept dry, and is the cheapest—ten feet long and two inches thick if for single stalls. This lower floor being laid is well saturated with hot gas-tar, and the upper layer of plank, also of hemlock, which under these circumstances is durable, and which does not become so smooth or slippery as oak or yellow pine, and is therefore safer, are laid upon it. They are first coated upon the under side with the tar, then laid so that the joints are broken and finally firmly spiked down. These planks should be $1\frac{1}{2}$ inch thick and 7 feet long. They form the



Fig. 1.—WOODEN FLOOR FOR COW-HOUSES.

bed of the stall, of which $2\frac{1}{2}$ feet are occupied by the feed-trough, and $4\frac{1}{2}$ feet give standing room for the cow. At the ends of this bed or floor of the stall is a depression $1\frac{1}{2}$ inch deep, into which all the manure drops or drains. This may be made of any width that is desirable. When the stalls are single two feet is a sufficient width, with a sidewalk of one foot wide. If the stalls are double four feet give plenty of room. Figure 1 shows the profile of such a stall with the lengths of the various parts and the position of the stanchion and that of the cow. The depressed portion of the floor should be kept well coated with gas-tar and sprinkled with sand while the tar is hot. The tar is a great preservative of the wood. Such a floor is quite impervious to water, and is equally good for a hog-pen as for a cow-stable. For horses, the floor should be laid with the best white oak, hemlock being too soft to stand contact with the shoe calks.

The other floor is the cobble-stone and cement floor. The floor being graded with a gentle slope, or half an inch to a foot, is paved with cobble-stones selected for evenness of size and for their shape, which should be that of an egg with one broad and one pointed end. The smaller end is laid in the earth and the broader one uppermost. The method of laying them is shown fully in the *Agriculturist* of November, 1871. They should be well rammed down, and when the floor is laid all loose sand is to be swept off from it. Fig. 2 shows how the floor for a double stall should be made. The spaces are of the same size as those in fig. 1. The finishing of the surface is thus performed. One part of good hydraulic cement and seven parts of sharp sand are well mixed dry, and then

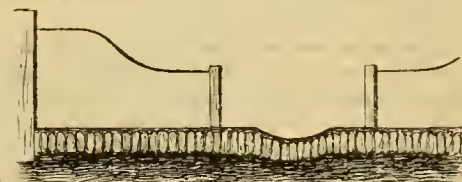


Fig. 2.—COBBLE-STONE PAVEMENT FOR COW-HOUSES.

water is added sufficient to make a thin mortar. This is quickly spread over the paved floor and worked into the spaces between the stones with an old stiff corn broom. It is laid on thick enough to fill the spaces evenly, and with the broom a fair smooth surface is formed through which only the tops of the stones are seen. A thin wash of pure cement is spread over the whole, and it is left to dry. The next day a

coating of hot gas-tar is laid upon it until no more is absorbed, and fine sand scattered upon it. Then we have a floor which will last indefinitely if only care has been taken to make a solid foundation and to ram the stones down solidly. It is entirely rat-proof, dry, and therefore healthful. This floor is also pig-proof, and suitable for hog-pens which have nothing beneath them but the ground. It is obvious that this paved surface is solely a ground floor, and can not be used over a cellar.

A Cart for Irrigation.

There is no doubt that the experience of the last two or three years will lead to a very early use of some method or other of irrigating crops grown upon land of more than ordinary value. Market gardens, lawns, private gardens, dairy farms on which soiling crops are grown, all will before long be brought under some system

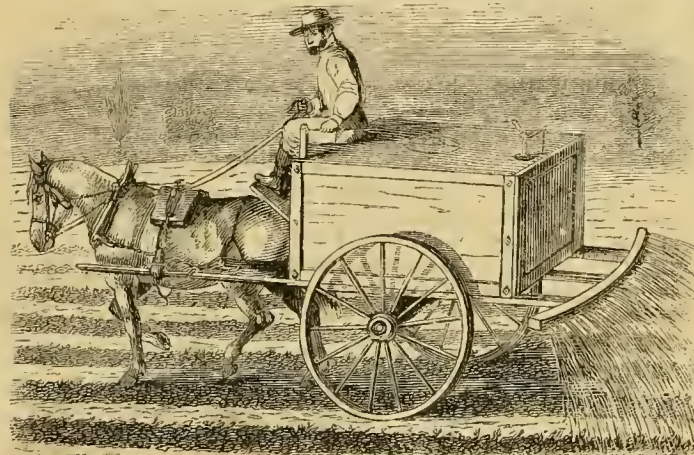


Fig. 1.—AN IRRIGATING CART.

of irrigation, not so much with water as with fertilizers in a liquid form.

When it becomes a question of crop or no crop upon land that must pay interest on a cost of several hundred dollars per acre, to say nothing of repaying the costly labor laid out upon the crops and that the saving of the crop depends upon a supply of moisture which is

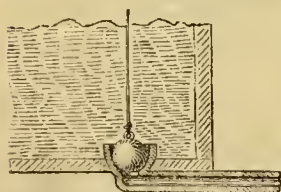


Fig. 2.—BALL AND CUP VALVE.

withheld by nature, it is certain that an immediate solution will be found in providing means for supplying the needed moisture. Besides, manure already dissolved is immediate in its action upon plants, and is at once absorbed by the roots. By irrigation with weak solutions of manure crops of rye grass are continually grown upon some English dairy farms which amount in the aggregate to 30 tons per acre during one season, and an aggregate growth of 100 inches has been thus procured by making several cuttings.

The great difficulty is in applying the liquid and procuring proper carts for the purpose. A correspondent has favored us with a description of one of these carts which he has constructed, of which we give an engraving. It consists of a tank set upon a frame having a pair of shafts as the main portions. The shafts project behind sufficiently to permit the sprinkler to be attached. The tank is a simple water-tight, covered box, as represented in fig. 1. The valve (fig. 2) is a ball which drops into a

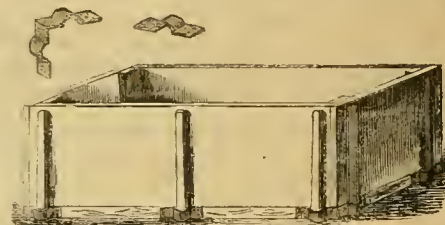
cup, stopping the flow when down, and when raised permitting whatever quantity is desired to pass through the pipe. The top and bottom of the sprinkler are made of two pieces of board four inches wide cut to the proper curve. The front and back of the sprinkler are made of sheet zinc nailed to the edges of the board strips. The front is pierced with a quantity of holes, through which the liquid escapes in small streams. When in use, the horse walks between two rows, and the wheels pass between the rows on each side, thus watering four rows at one passage. It is obviously proper when the use of this cart is contemplated upon any crop planted or sown in rows that the rows should be made to suit the width of the cart.

An Improved Sled-Box.

"H. P. D." sends us a sketch of an improved sled-box, which is easily put together and as easily taken apart when necessary. The improvement consists in affixing corner and side irons to the frame of the sled, in which stakes are placed to hold the box in place. The side and corner irons are shown in the upper part of the annexed engraving, the lower part of it shows how the stakes are set into the irons to hold the box. The sides and ends of the box are loose. The side boards are held in position by cleats upon the inner sides of the end boards, and the ends overlap the sides, as may be seen in the engraving. If it is desired to draw a load of wood the box is taken apart and the irons serve as stakeholders whereby the load is held. This removes the necessity for boring holes in

The Poitou Jackass.

In a recent number of the *Agriculturist* we gave engravings of the Poitou mule, with some notes of their history and character. We now give an engraving of the Poitou ass, the progenitor of the Poitou mule, as he appears in his early youth or as a yearling. While he has no beauty, this animal has a sturdy, long-suffering look very proper for an ass, and besides his very ugliness to us is considered by his



SLED-BOX AND IRONS.

owners or those who patronize him for his usefulness as a style of beauty no less remarkable than it is desirable for their purposes. The points of this animal which are most esteemed are precisely those which are desired to be perpetuated in his progeny. His heavy bone, short pasterns, and broad feet, his thick strong neck, broad chest, and stout limbs make him so desirable, that the inevitably accompanying head, enormous in size, immense ears, often lopped by reason of their extreme size and weight, and the pendulous lip, with the shaggy coat, are considered as a standard of excellence of the very highest character. The more these seemingly hideous features are exaggerated, the more valuable the creature becomes and the higher are the hopes entertained of his future merits. To a breeder's eye these seeming anomalies are points of great interest, and skillfully used combine with equally skillful selection as to mares to produce probably the hardest kind of draft animals in the world.

This ass is supposed to be of Spanish extraction, and the vast difference between the ori-



A YOUNG POITOU JACK.

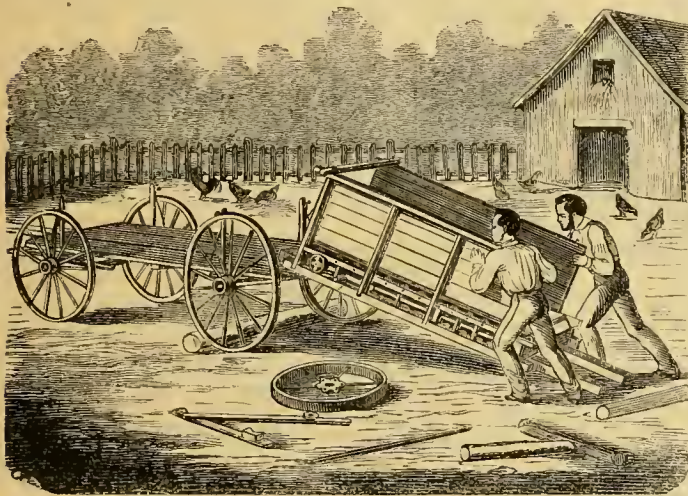
the *rive* of the sled, by which it is very much weakened. The cuts in a corner of the engraving show so plainly the exact character of the irons that no further description is necessary.

ginal race and these descendants has been brought about by careful selection and judicious breeding. The height of the full-grown Poitou ass is about 14 hands, and the color is a

black or dark brown. The engraving, for which we are indebted to the London Field, represents a yearling recently imported into England. His history is curious. His dam was burnt to death the night he was born, as were also some half-dozen more of the same breed, and he was brought up by hand like a "finger calf." He stands some 46 in., and promises to make about 14 hands. In temper he is very gentle and tractable. Like the Arabs with their mares, the Poitou breeders manifest considerable reluctance at parting with their asses, which is not to be wondered at considering the large sums of money which this mule breeding and selling brings them in.

Loading a Tread-Power.

A "Young Farmer" who owns a tread-power and thrashing machine finds it a difficult matter to load it upon a wagon, and asks for a plan of doing it with the help of one man with himself. We have experienced exactly the same difficulty, and doubtless so have



LOADING A HORSE-POWER UPON A WAGON.

many others. After some few trials we hit upon a very easy method of doing this, and finally found that ten minutes were sufficient in which to load up both a two-horse tread-power and thrashing machine in addition. All that is needed are two strong planks 12 feet long, three rollers 6 feet long, and a couple of crow-bars. The tread-power is supposed to be standing in the barn as it was last used, set up on blocks or a "horse." Two rollers are placed beneath it and it is let down upon them. Our method of doing this was to have four or five blocks, the largest so long as to stand under the front of the tread-power as it was blocked up for use, or about 14 inches in length. This was used as a fulcrum by which to raise the power from off the "horse" or blocks on which it rested. It was then let down upon a smaller block. The one just used was taken away, and the next less in size substituted. This was used as a fulcrum for the crow-bar, by which the power was raised and the block moved and one yet smaller substituted. This was repeated until the power rested upon the rollers. The wagon was properly placed to receive its load, the planks were placed with one end of each upon the wagon and the other ends under the front of the power. By means of the bars the power was pried forward, moving easily upon the rollers until it was pushed upon the planks and rested upon the movable platform or tread floor. By putting two men

with their shoulders to the rear of the power it could then be run up the planks on to the wagon, where a roller should be placed to receive it as the forward end comes down, which of course it does as soon as it over-balances the rear end. It is then pushed forward into its place, the roller being left under it ready for unloading, which is exactly the reverse of the loading, and it is fastened with ropes or chains to the wagon stakes. The planks are then shifted on to the floor of the power and the thrasher is slid up upon them and placed in the tread-power, where it is secured. The rollers, planks, bars, and all the other accessories are also loaded, and in less time than we write this the machine may be on its way to a neighbor's farm who desires its help. Our engraving shows the way in which the wagon and planks are placed, and also how the tread-power is managed when fairly upon the planks.

How to Move Houses.

Among our farming population one man rarely builds or locates his buildings to suit his successor, and when a farm changes hands and a new occupant takes possession of his purchase, he finds it desirable to pull down, replace, or remove, at least, some of the buildings. Many more would move badly located buildings if they knew how to do it or how to procure a removal. The means are simple enough; the knowledge of how to use the means is the one thing needed. We give here some engravings of the method by which buildings are

moved, and explain their use. The implements needed are jackscrews, rollers, and timbers. The jackscrews are powerful screws made expressly for the purpose, which may generally be hired from a neighboring foundry or machine shop, or can be purchased for a few dollars each. The rollers consist of a very heavy carriage of timber about three feet long and eighteen inches wide for heavy buildings, and half that size for light ones. It is framed together of strong material, either oak or yellow pine, six inches square. Underneath there are strong cast iron wheels let into

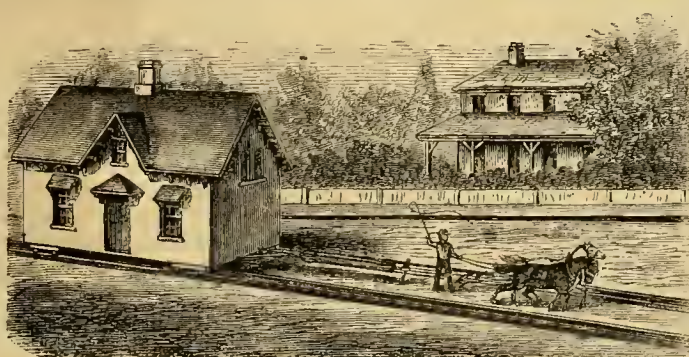


Fig. 3.—THE HOUSE ON ITS TRAVELS.

the timber for half their height, and held in their place by means of strong iron plates bolted to the frame (fig. 1). On the top of the

frame iron spikes, projecting about one inch above the timber, are inserted, and each one is brought to a point, which is intended to penetrate the sills of the building and hold the roll-

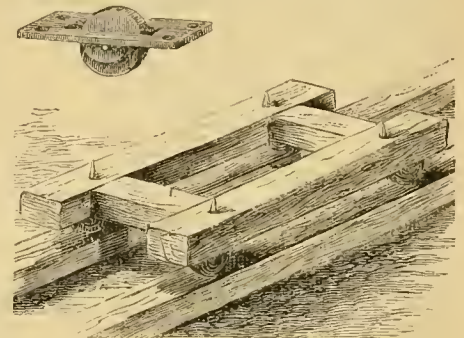


Fig. 1.—CARRIAGE FOR MOVING HOUSES.

ers firmly in the position in which they are intended to remain (fig. 1). To get the rollers under the building, it is raised by the jackscrews, which are placed upon the foundation wall, parts of which are removed for the purpose. For a small building one screw at each corner is sufficient; but if the sills are weak enough screws should be used to support the building evenly, so that the inside plaster may be preserved entire. When the screws are all placed in position, each one is turned an inch or two at a time in regular order if there are not sufficient hands to man all the screws at the same time (fig. 2). If there is a sufficiency, the screws are turned simultaneously until the

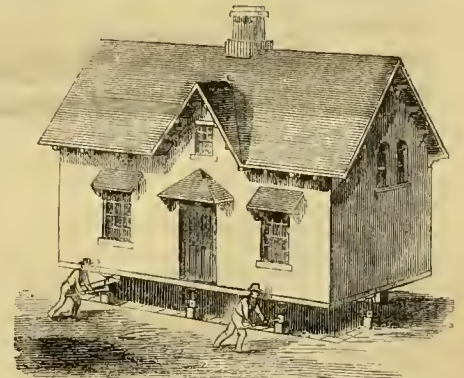


Fig. 2.—HOUSE RAISED BY SCREWS.

building is raised so that the timbers can be placed beneath it and the carriage upon the timbers. The building is then let down upon the carriage, ready for removal. The timbers should be evenly and solidly laid upon the ground. A strong rope and a set of tackle are needed to draw the building. A strong iron bar is driven into the ground ahead of the building, to which one end of the tackle is fastened. The other block is hooked on to a rope or chain fastened to the sill of the house. If this sill is not strong enough to bear the strain, it must be strengthened. The team is hitched to the rope and started gently and steadily (fig. 3). As the house is drawn up to the iron bar, that is moved further on and a

new start made. It may be necessary to observe that the timbers should be laid quite level and be blocked up when necessary to preserve

a level. When the house is in the desired position the screws are again placed beneath it, and it is raised so that the timbers can be taken away. The foundation, if not already prepared, is made ready, and the house is let down upon it.

Supply of Water.

We have often alluded to the common neglect of watering stock as often as is needed. Very absurd ideas are prevalent about watering stock. He who would permit an animal to gorge itself upon hay would prevent it from drinking the water needed to dilute the food so that it might be digested. Only those animals that are stinted until their thirst is intolerable suffer from drinking too much water;



Fig. 1.—CISTERN FOR WATER.

just as those animals eat too much which are insufficiently fed or fed at too long intervals. An animal with food and water always attainable will never take too much of either, and its instincts may very safely be trusted to. Therefore we would advise the use of water-troughs in every field where cattle are kept, although they might be driven through a stream on their way to and from it. We have seen sheep that had access to a spring in their pasture go and drink from it a dozen times a day, taking merely a few sips each time, and the same with cows and horses. No harm can possibly come

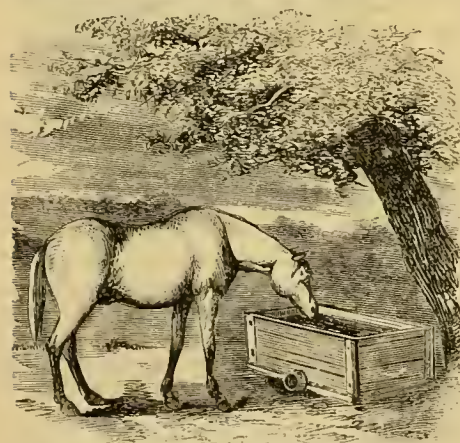


Fig. 2.—MOVABLE CISTERN.

of such drinking. The stomach is not loaded with liquid at any time, nor is it ever in want of that amount which is necessary.

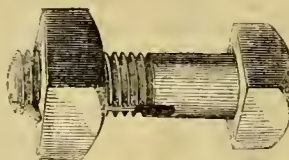
Where there is no water in the field wooden troughs should be made. In the barn-yard, or where there is a permanent pasture, these troughs may be made similar to that shown at fig. 1. Hemlock plank dressed smoothly and jointed accurately are held together by bolts and nuts which may be drawn up tightly. If the joints are not made water-tight, a slip of paper dipped into tar should be placed in each one and the screws then drawn up tightly. The trough will not then leak. For a temporary purpose in fields occasionally pastured a portable trough should be used, made in the same manner as that in fig. 1, but mounted

upon an axle and a pair of small wheels. A ring is fixed to the front by which it is hooked to a chain, and by which it may be drawn wherever it may be desirable (see fig. 2).

To fill this trough the water-cart shown on page 416 might be used. The sprinkler should be detached, and the pipe would then discharge directly into the trough. If the importance of a constant supply of water were only well understood the value of these appliances for watering would be appreciated.

A Lock-Nut Bolt.

The nuisance of loosening and lost nuts from machine bolts, thills of buggies or wagons, and other numerous places where farmers and other folks need and use bolts need no longer be submitted to. The costly and dangerous accidents to machines, the dangerous dropping of thills when traveling at speed upon the road, the expensive repairs needed in grist-mills and saw-mills due to the same frequent cause, and all the other too-numerous-to-mention troubles which thus arise may be prevented by this ingenious and very simple contrivance. Its simplicity is such that the wonder is that no one ever thought of it before, and almost contradicts its claim to ingenuity. The accompanying engraving shows of what the contrivance consists—an ordinary screw bolt and nut, with a groove cut in the bolt from the lower end across the thread of the



LOCK-NUT BOLT.

serew and a short distance above it. The nut is in no way different from an ordinary nut. A copper or other soft wire is placed in the groove, and as the nut is turned with the wrench it cuts a thread with ease upon the soft wire. When the nut is screwed home the end of the wire below it is turned up or "upset" with a common set-punch or a tenpenny-nail and a hammer. This locks the nut and entirely prevents it from shaking or jarring loose. The wire is soft enough so that the nut may be very easily unscrewed with the wrench, but can not be unscrewed by the fingers or by any less force than that needed to use the wrench.

We look upon this contrivance as of vast importance to farmers especially, and expect to see it in universal use in all farm machinery. It is patented, and is manufactured by the Lock-Nut and Bolt Company of New York, who furnish the bolts and for a very small sum confer licenses to use them on any machines.

Do Snakes Swallow their Young?

BY PROF. C. BROWN GOODE.

This is what naturalists have been asking each other for nearly a century. In that most fascinating of books, "The Natural History of Selborne," Gilbert White mentions the popular belief, but does not venture to indorse it. M. Palisot de Beauvois, a member of the French Institute and a counselor of the University of France, who traveled in the United States early in the present century, claimed to have seen five young rattlesnakes, "each about as thick as a goose quill," run down their mother's throat, run out, and then down a second time. John D. Hunter, in his celebrated

"Memoirs of a Captivity among the Indians of North America," gives similar testimony. Sir William Jardine, an eminent English naturalist, wrote in 1853: "We have always looked upon this as a popular delusion, and the supposed habit is so much at variance with what we know of the general manners and instincts of animals, that without *undoubted proof* we are still inclined to consider it as such." In 1865 Mr. M. C. Cooke, of "Science Gossip," strongly advocated the affirmative, citing many instances observed by his friends. In 1869 Mr. F. W. Putnam, of the "American Naturalist," considered the case unproved, though he inclined to believe with Mr. Cooke. During the past year a lively discussion has been carried on in "Land and Water," Mr. Frank Buckland, one of the keenest of English naturalists, strenuously opposing the idea. So stood the question, the authorities being about equally divided.

To the *American Agriculturist* is due the honor, it seems, of finally deciding it. Last February the editors kindly inserted a paragraph asking for information, and in a few weeks about eighty letters had been received from subscribers in twenty-four different States and provinces. Some of these were not to the point, but most of them contained the statements of those who had personally observed this very curious habit. Many were, very naturally, indignant that a fact so well known should be called in question.

These statements, together with many others collected by diligent personal inquiry, were embodied by the writer in a paper read at the late meeting of the American Association for the Advancement of Science. The paper elicited some discussion but no opposition. Prof. Gill, of Washington, one of the most skeptical as well as one of the ablest of American scientists, expressed himself as convinced by the testimonies of so many witnesses, and so did many others.

Many of the letters received deserve to be printed in full; but since want of space forbids, only figures can be given. Our witnesses are 104 in number. 58 saw the young enter their mother's mouth; 19 heard the mother warn them by a sharp whistle or hiss or click; three were considerate enough to wait and see the young reappear when danger seemed to be passed; eighteen saw the young shaken out by dogs or running from the mouth of the dead mother; 32 who saw the young enter killed the mother and found them, living, within her; while only 14 of the 58 allowed the poor, affectionate parent to escape; 29 found the young in the body of the parent, but as they did not see them enter the mouth this testimony is rather dubious.

Among the witnesses are four naturalists of reputation, whose word is as good as gold in other departments of natural history. Eminent physiologists admit that there is nothing impossible in the habit, for living tissues are not easily affected by the gastric juice, and reptiles could not easily be smothered, even in the mother's stomach. The habit is known to be shared by the English Scaly Lizard. The males of certain species of South American fishes related to the "Cat-fish" and "Bull-head" carry their eggs in their mouths and gill openings, depositing them in places of safety and removing them at the approach of danger. Equally singular though not similar habits of protecting the young are found in the well-known Surinam Toad, in the Kangaroo and Opossum, and in the Pipe-fish and his cousins.

There is room for many interesting observations, especially to determine what species afford their young this protection. About the Garter-snake (*Eutania sirtalis*) and the Ribbon-snake (*Eutania saurita*), the Water-adder (*Tropidonotus sipedon*), the Banded Rattlesnake (*Caudisona horrida*), the Copperhead (*Ancistrodon contortrix*), the Moccasin (*Ancistrodon piscivorus*), and the Massasauga (*Crotalus tergeminus*) there can be little doubt, and the habit probably extends throughout the genera which these species represent. The case of the Hog-nosed-snake (*Heterodon platyrhinos*), sometimes called the Blowing or Puffing Adder, needs farther investigation, and so also that of the Black-snakes. It seems more than likely that the Racer or Mountain Black-snake (*Coluber Alleghaniensis*), which is distinguished by a little ridge or carination in the middle of each scale, does thus protect its young, but it has not been shown that this is the case with the common smooth-scaled Black-snake (*Bascanion constrictor*). It is very desirable to learn whether, as has been supposed, the habit is peculiar to those snakes which are ovoviviparous—that is, those in which the young are hatched from the egg while still in the body of the parent. As was remarked, there is no proof that the Black-snake swallows its young, and this is the case with all the egg-laying genera, as the Milk-snakes (*Ophibolus*), Grass-snakes (*Liopeltis* and *Cyclophis*), Brown-snakes (*Storeria*), Ring-necked-snakes (*Diadophis*), and Bull-snakes (*Pityophis*), although they are common and easy to observe.

If any reader of the *Agriculturist* should observe a snake with young running down her throat, or should have reason to believe that she had them in her stomach, it would be a capital plan to tie a cord tightly about her neck to prevent their escape, and then carry her to some naturalist or some physician and have a careful dissection made. This would forever settle the question, and might be done without the least difficulty, for all our snakes except the Rattlesnakes, Moccasins, Copperheads, and Massasaugas are perfectly harmless.

Accurate statements are much needed of cases of snakes charming men, quadrupeds, and birds. It would be interesting to know whether the cast-off skin of a snake is always left as the snake wore it, or whether it is sometimes turned inside out.

Museum, Wesleyan University,
Middleton, Ct., Sept. 15.

Neufchatel Cheese.

The New York market is now pretty well supplied with home-made Neufchatel cheese from German dairies in New Jersey. There is a good demand for them at paying prices, and there is no doubt that an increased supply would only lead to increased consumption.

These cheeses are about 2½ inches long and about 1½ inch in diameter. They are sent to market wrapped in thin paper, which is also sometimes covered with tin-foil.

There is a great difference in the quality of different makes. Those sold at the fruit stands on Broadway are little more than "pot-cheese" pressed into a solid mass and wrapped for market. The best French cheeses of this class are made and ripened with great care. They are usually made from whole milk, which immediately after being drawn is strained into crocks and treated with rennet. The crocks

are then stood into boxes which are covered with woolen cloth. After having stood 48 hours the crocks are emptied into a basket lined with a clean white cloth, and standing over a trough to drain. After 12 hours the corners of the cloth are folded closely over the curds, which thus enveloped are placed within a press and left for 12 hours. They are then put into a strong linen cloth, in which they are thoroughly kneaded and rubbed in every part until the caseous and buttery parts are perfectly mixed and made into a homogeneous paste. If this paste is too soft the cloth is changed until the surplus moisture is withdrawn. If it is too hard and dry more curds are added from that of the next milking (which is now draining). The mold, which is open at both ends, is then rather more than filled with the paste. It is held upright over a table with the left hand, while the top is patted down with the palm of the right hand so as to completely fill the whole mold. The surplus is then cut away, and the little cheese is pushed out from the mold.

The cheese after molding is dusted on the two ends with very fine and dry salt, that accidentally remaining on the hands being sufficient for salting the sides. It is then stood on a board, not touching its neighbors, and left to drain for 24 hours. The cheeses of this making are then carried to the store-room, where they are laid on their beds of clean straw (on shelves), being placed in uniform rows cross-wise of the straw, and lying about the distance of their diameter from each other. Two days later they are turned, each one being rolled half way over; this brings them on to dry places in the straw. Three days later they are turned up on end and stood on the space between the original rows. After five days they are reversed and placed on their other ends, and here they stand five days longer. They are now sixteen days old, and have become somewhat dry, a skin being formed over them. If they are not now coated with a slight blue mold they are again reversed and allowed to stand longer. When this mold has appeared they are taken to a dry, cool room, where they are turned (end for end) every five days, and they are watched (with much care as to atmospheric conditions) until they are well coated with a reddish globular mold. If the processes have all been well managed this mold will appear uniformly on all sides, and the ripening will be equal throughout. After this they are turned less frequently, first once in ten days and then once a fortnight. At the end of three months they should be sold, as soon after this time they will begin to run.

Well-made Neufchatel cheese should be a homogeneous paste, free from granulation, and spreading smoothly like butter.

The care and close attention which the manufacture demands justifies the high price that the well-made article fetches in the European markets—a price which the more simply made American imitation can not command.

OATMEAL IN DRINK.—It is suggested by the Medical Journal of Edinburgh that oatmeal stirred up in cold water, at the rate of two teaspoonfuls of meal to half a pint of water, would be a very healthful and grateful drink in the harvest field. In England, at a recent plowing match, the only drink furnished was water with oatmeal stirred into it, and it was found "mighty refreshing." We give corn-meal in water to our horses for a drink with great advantage. Why should we not treat ourselves to the same healthful luxury?

The Goose and its Varieties.

The goose being in request to provide a filling for the couch and pillow, and to furnish the holiday table, the farm housewife is three times each year in a condition of excitement regarding her geese. The peculiar disposition of these birds gives the housewives a vast deal of trouble. The goose will choose her nest in the worst possible place, and when she has chosen it no persuasion will convince her that any improvement can be made upon her selected location. We have known a goose to choose a pile of cobblestones in the corner of a fence as the home of her future progeny, and rather than give up the place she gave up both home and progeny. This made it clear to us that it was very important to provide a convenient house for these really valuable and docile birds (docile when rightly treated, for a goose may be taught to do almost anything in reason), and educate them up to the standard of having a settled home and staying there. The kitchen doorstep is no proper place for their nightly resort, and although they would rather choose to lie upon the cold ground or a snow-bank or a miniature glacier than upon a clean straw bed in a decent pen, yet they may be trained to walk in solemn file each evening into their appropriate yard, which may be furnished with a nest-house and nests very early in the spring when they are about to lay. If this yard is placed at some convenient spot within hearing of the house, no person or thing can approach, however quietly they may try to do so, without creating an alarm. After a nest is chosen it should not be disturbed except to remove the egg daily laid until the goose takes permanent possession and wants to "set." She may then be furnished with nine eggs (the usual number), and may be depended on to perform her duties without any supervision and with remarkable instinct and sagacity. The goslings need less care than any other young poultry. Bread-crumbs, corn meal, cracked wheat, and mashed potatoes may all be fed; but the precaution must be taken to give the food in small quantities and frequently, and to have a supply of fresh water in shallow pans always at hand. If the goslings have the run of a pasture they will need nothing else than the grass, with a feed of meal or bread twice a day. Chopped chives are excellent for them mixed with other food.

The time for plucking of the geese must be determined by the age and strength of the goslings as much as by the season or the condition of the weather. If the goslings have been brought out moderately early the geese may be picked in May or June. If the picking is done before this time the goslings may suffer from want of covering. At the best the picking of a goose is a painful operation, but as "live goose" feathers are in demand the poor geese must submit. It should be made, however, as little painful to them as possible. The wings should not be crossed on the back as is often done, but which is a very painful and cruel thing to do, but the tips of the wing feathers should be tied together. For the sake of cleanliness the goose should be enveloped in an apron or a towel during the operation. A second picking may be done during the summer, but a third plucking late in the season should not be permitted. The wing supports should in no case be plucked.

The fattening of geese is a very easy matter. Turnips chopped fine and fed in a trough of water will fatten a lean goose just off from the grass in a very short time. A lean goose?



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THE DIFFERENT VARIETIES OF GEES E.—Drawn and Engraved for the American Agriculturist.

weighing nine pounds has been made to reach a weight of twenty pounds in four weeks by feeding on turuips alone. Brewers' grains boiled afresh are good feed, and oat-meal or corn-meal boiled in milk and sweetened with molasses will fatten them rapidly. Boiled oats and potatoes are also excellent feed, and no better use can be made of a stubble field than to turn in a flock of geese to pick up the scattered grain. The waste grain or screenings from the thrashing machine should be boiled and fed to geese in preference to any other farm animals. While feeding, a plentiful supply of coarse gravel should be provided in a trough of water; and water should be given with liberality.

The mature goose has no diseases; and goslings suffer only from the most careless neglect. With a long acquaintance with these birds, we never knew or heard of one dying a natural death. How long a goose will live is a question not yet satisfactorily answered. Such a bird, which will increase its number twelve or twenty up to fifty times each year, which will give a crop of feathers twice in a season, the flesh of which is worth at least ten cents a

pound live weight, and which may be fed on waste or the least costly food, is surely worthy of respect and encouragement.

There are several varieties of geese, some of which may be considered ornamental. The engraving represents the different varieties commonly kept. The common goose, which seems to be a mixture of the white and gray goose, is shown in the barn-yard scene in the upper center. Beneath is the Embden goose, or white variety. This bird is perfectly white, and is said to have originated in Holland centuries ago. The feathers of this variety are the most valuable. The Sebastopol goose is shown at the upper right-hand corner. This bird has a peculiar plumage: the wing feathers are split and curled, giving to it a remarkable appearance, if nothing more. It is pure white. In the opposite corner are a pair of China or "Knobbed" geese. Their long necks for some time caused them to be classed amongst the swans, but they at last secured the honor of belonging to the more homely but more useful family of geese. They may be recognized during the day by their peculiarly shaped head and long necks, a dark streak down their necks,

and their dark gray color; and by night by the frightfully discordant and persistent screams with which they wake the echoes and murder sleep. Beneath the Chinas are seen the Toulouse or Gray geese, known at sight by their greatly developed abdomen, which even in yearling birds sweeps the ground. Opposite them are the wild geese—the most graceful of all these graceless birds. They are pleasingly marked with black, and although very wild in their habits they have been known to descend amongst a flock of tame birds and inter-breed. Such an occurrence took place with a flock of our own several years ago in a Western State, and several goslings were raised marked like the wild gander. A very usual fate which happens to them during the migration of these birds is told in the left lower corner of the engraving. Opposite to it is shown an example of the sagacity with which the cautious gander circumvents the tricks of the wily fox, "playing 'possum" as a means of gaining a supper; but alas! although a goose can save its neck from a fox, yet at last it becomes the spoil of the marketman, and finally retires gracefully from view amidst the festivities of the holidays.

The Star of Bethlehem.

There are a number of plants which were to be found in the gardens of our grandmothers that have now nearly or quite passed out of

name *Ornithogalum* means birds' milk, and if we are to believe an English writer, Johnson, the bulbs are the "doves' dung" mentioned in the Book of Kings as being sold at a high price. We have not seen this plant in cultiva-

has in England received the name of "Snow in Summer." This is much more showy than Bieberstein's, and were it not for the fact that it is apt to become ragged both from the effects of winter and our hot summers it would be greatly



STAR OF BETHLEHEM.—(*Ornithogalum umbellatum*.)



BIEBERSTEIN'S MOUSE-EAR CHICKWEED.—(*Cerastium Biebersteini*.)

cultivation. Some of these have made themselves at home in this country and become naturalized, and are only to be found in waste places about old settlements. An illustration of this class of plants is to be found in the Star of Bethlehem, *Ornithogalum umbellatum*, which has been sent us so frequently for a name that we give a figure by which it may be recognized. The plant belongs to the Lily Family, and has a small bulb somewhat like that of the onion. The very narrow leaves, six inches or more in length, arise from the bulb, and in their center is a stalk bearing at the top a cluster of five to eight flowers of the size shown in the engraving. The flowers are pure white within, but externally each petal is marked with a longitudinal green stripe. The flowers appear in May and June, and are remarkable for opening about 11 o'clock in the forenoon and closing about 3 o'clock in the afternoon. On this account the French call the plant *Dame d'onze heures*—"Eleven o'clock Lady." For the same reason it is in some parts of this country called "Johnny-go-to-bed." The generally accepted common name, Star of Bethlehem, has reference to the star-like points of the flower. It is a native of the countries bordering upon the Mediterranean, where the bulbs are eaten. When boiled they are said to be palatable and wholesome. The

tion for many years, but frequently find it by the road sides and in other places where it has escaped from gardens and appears to be at home.

Bieberstein's Mouse-ear Chickweed.

There are several species of Mouse-ear Chickweed—*Cerastium*—both native and introduced, that are common though not especially troublesome weeds in cultivated grounds, and there are a few that are sufficiently ornamental to deserve a place in the flower-garden. The one that has proved best with us is *Cerastium Biebersteini*, or Bieberstein's Mouse-ear Chickweed, a native of the Taurian mountains. It is a low, compact plant, not growing over six inches in height, and forms a dense mass of foliage. The engraving shows a portion of the plant of the natural size. It is one of the few plants that we have found useful for edgings, as it keeps dense, bears cutting well, and has not, in the neighborhood of New York, been killed by the winter or thrown out by frosts. Some of the books give it as a silvery foliaged plant, but we think that grayish green better describes it. Another and a related species is the Woolly Mouse-ear Chickweed, *Cerastium tomentosum*, which has the same habit of growth, and foliage of such a silvery character that it

to be preferred. Bieberstein's Chickweed is not only useful for edgings, but as a border plant or one for a rock-work, and is worth growing for its foliage alone in such places; but in early summer it blooms and produces its white flowers in such profusion as to completely hide the foliage. We are trying it as a plant for carpeting the soil beneath shrubs, but can not tell how it will answer this purpose. When used as an edging the flowers should be cut away soon after blooming, as the production of seed will needlessly exhaust the plants. Both the *Cerastiums* we have mentioned are sold by the florists. They grow rapidly, and are propagated by division with the greatest ease. Three years ago we had a smaller plant than that shown in the engraving, and this spring we had it by the wheelbarrow-load.

An Example in Cottage Gardening.

BY PETER HENDERSON.

Some dozen years ago I had the pleasure of making the acquaintance of a gentleman whose duties compelled him to be at his desk in a close office in the city of New York from 9 A.M. to 4 P.M. Naturally of rather a weak constitution, his sedentary life soon made him

the victim of dyspepsia to such a degree that he felt as if he must soon resign his situation. He was then a man of forty, entirely ignorant of anything pertaining to country life, and it was with great misgivings and reluctance that, by the advice of his physician, he changed his home from a closely built part of New York to a cottage on the then country-like suburb of Bergen Heights, N. J. His means enabled him to purchase a modest cottage built on a lot 50 by 150 feet; he did not want the land, he said, but the cottage was such as he fancied, and the ground had to go with it. It was about this time that I formed his acquaintance, through some business transaction, and he asked my professional advice as to what he could do with his land, which he had already begun to consider somewhat of an incumbrance. I replied to him that, if I was not greatly mistaken, in his little spot of ground lay a cure for all his bodily ills, and that besides it could add to the comforts if not the luxuries of his table if he would only work it. "Me work it!" he exclaimed. "You don't suppose that these hands could dig or delve," holding up his thin and bloodless fingers, "and if they could I know nothing about gardening." I told him I thought neither objection insurmountable if he once begun.

The result of our conversation was that he resolved to try, and try he did to a purpose. Our interview was in March, and before the end of April he had all his lot nicely dug over, the labor being done by his own hands during an hour and a half each morning. His custom was to get up at six o'clock and work at his garden until half past seven. This gave him ample time to dress, get breakfast, and be at his desk in the city by nine. The labor of merely digging was (to him) heavy and rather monotonous, but he stuck to it bravely, and when he again presented himself before me for plants and seeds and information how to place them, it was with some pride that I saw my prescription had worked so well, for my friend then looked more like a farmer than a pallid clerk. The regulating of his little garden was a simple matter, and was done according to the following diagram:

Canliflower, cabbage, and lettuce.	Strawberries.
Cucumbers, onions, and parsley.	Raspberries.
Beets, carrots, and parsnips.	Tomatoes.
Bush beans.	Rhubarb.

During his first season, of course, he made some blunders and some failures, but his interest in the work increased year by year. His family was supplied with an abundance of all the fresh vegetables and fruits his limited space could admit of being grown—a supply that it would have taken at least \$150 to purchase at retail, and stale at that. But the benefit derived from the cultivation of this cottage garden was health—strong, rugged health—that for the six years he was my neighbor never once failed him.

I know this case is an extremely exceptional one, for I never knew another man who so resolutely worked himself into health. There are hundreds of business men, book-keepers, salaried men, clerks, and the like who live in the suburbs of all great cities, many of whom can ill afford to pay for the keeping of the plots

surrounding their cottages, but who think they can far less afford to do the work themselves. As a consequence, in nine cases out of ten, the rear at least of their suburban plots is a wilderness of weeds, and the muscular force, because not used, brings retribution upon the lazy owner. The proofs are apparent everywhere that garden operations are conducive to health and longevity. The work is not laborious, and when fairly entered into has a never-failing interest. The growing and the watching of the great variety of plants gives a healthy tone to the mind, while the physical labor demanded by cultivation takes care of the body.

The Bois d'Arc for Lumber.

In a recent visit to Northern Texas we saw large numbers of the Bois d'Arc or Osage Orange trees in the river valleys, and heard marvelous stories of the endurance of the wood in situations where it was much exposed to alternate moisture and drouth. It was much used by the Indians for bows, and the early French *voyageurs* gave it the name of *Bois d'Arc*, or bow-wood, a name often corrupted into "Bodock." The tree grows sometimes to a diameter of two or three feet, and is sawed into lumber for wagons. It is close grained, and the tire once set upon the wheels never becomes loose until it is worn out. This is a great advantage in any climate, and would be invaluable in the almost rainless region of the plains. They tell of wagons in Texas that came in with the first emigration, and, after thirty years, are still serviceable and in good condition. The wood is also much used for fence-posts, and resists decay longer than any other wood in that region. If these claims are well founded there must be an immense demand for the lumber west of the Missouri, where wood is so scarce, and where there is no hard wood at all. The forests of this wood in Texas should have protection by law, and it should be extensively planted in the more Northern States as a timber tree.

Carpeting Borders Beneath Shrubs.

In places where greenhouse plants are used to decorate the grounds, whether they are turned out or the pots are plunged, the appearance of the border devoted to them is greatly improved if the surface of the soil be covered with some low-growing and rapidly spreading plant. We have seen *Portulacas* sown broadcast with very good effect, but the trouble with these is that the seed germinates slowly, and the plants do not make much show until late in the season. The best attempt we have seen at carpeting was in the grounds of Prof. C. S. Sargent at Brookline, Mass., where *Gnaphalium lanatum* is used. This bedding plant is propagated with the greatest ease, grows rapidly, and soon covers the soil with a carpet of neutral gray tint, against which bright foliage and flowers show to the best possible advantage. This is a point in gardening that has received less attention than its importance demands. If the soil of beds in which plants are temporarily placed be carpeted with some rapidly growing plant of a pleasing color, not only is the general effect heightened, but of course much labor in keeping is saved. In permanent shrubberies, too, this is a matter of no little importance. The soil beneath our shrubs is

either bare or covered with weeds. Why not grow some pleasing plant which shall cover the ground and save all trouble of weeding? We are trying two plants for this purpose. In one row of shrubs we have set plants of the Money-wort (*Lysimachia nummularia*), which always grows rapidly enough when allowed to become a weed, and which makes as dense a mat as can be desired. In another clump of shrubs we are trying *Cerastium Biebersteinii*, described and figured upon page 421. We have not had either of these long enough upon trial to be able to say more than that they promise well. The common Periwinkle or "Running Myrtle" (*Vinca*) would probably be useful in such places, and the Moss-Pink (*Phlox subulata*) might be tried. Could we get a set of low-growing plants that would flourish well beneath the drip of shrubs, and completely cover the surface, it would not only greatly improve the appearance of our grounds, but do away with the necessity of weeding. When shrubs are set out to remain in one place for years, the soil should be so well prepared at the outset that there will be no need of the annual forking in of manure that many think it necessary to give their shrubberies every spring.

The Enemies of the Cranberry Crop.

The cranberry crop is short in many parts of New England on account of the drouth, the worms, and other enemies. This fruit, though growing mostly upon peat bogs and swampy places, is as much affected by drouth as other crops, especially upon the thoroughly drained and graveled or sanded plantations. The fruit fails to set well, or if already set the fruit is small. The remedy for this is to have the water raised in the ditches to a point where the roots will reach it without flowing the plants. The fruit-worm and the vine-worm are among the worst enemies of the cranberry grower. Flowing in the spring is a complete remedy for the vine-worm, and if prolonged late enough in the season it will destroy the other. Many growers draw off the water early in May, when the parent moths are most active. It is now pretty well settled that the water should be kept on until the first of June, or if drawn off early in May it should be put on again for a week at the close of the month. At that season the water is warm enough to destroy the eggs. The latter is the practice of our most intelligent cranberry growers. Discretion, however, is to be used in the drawing off of the water. If the vines are covered to the depth of three feet or more the water would probably be too cold at the bottom to kill all the eggs. It should be drawn down so low as to barely cover the vines and give the surface the full benefit of the sun. Where the water is abundant and under control it is the better way to draw off the water about the first of May, and let it on again from the 20th of May to the first of June, according to the earliness of the season. It would be still better if the plants could have a third flooding ten days later, but in this case the water should only be left on for a day or two, lest it might injure the fruit buds. Many bogs are injured by winter killing. Flowing in winter is an effectual safeguard against this. The water should be put on as early as the first of November, or at least before there is any danger of freezing, and the bottom of the ice that may form should be kept above the tops of the

plants. With these precautions cranberries are more reliable on well prepared plantations than most other fruit crops.

Notes from the Pines.

In these golden autumn days, when all vegetation is maturing and making ready for the first hard frost, what else can one do but prepare for winter? So busy have I been in getting things ready for their winter quarters that I have noticed but little on my own place to record, and that little I shall mix up with gleanings from such readings from foreign journals as I think may be of interest. A part of my preparation for winter consists in

BUILDING A GREENHOUSE, or rather a sort of cross between a greenhouse and a conservatory. It is a good sized lean-to with curvilinear roof and an entrance from the dining-room. My experience would not exactly qualify me to tell another who wished to build what to do, but I could cite many instances of what not to do.

VALLOTA PURPUREA is a plant of such easy culture that I wonder we do not see it oftener. Mr. Chitty, of the Bellevue Nursery, drove over the other morning to make me a visit. He did not know that I had been housed for a few days, but some happy influence induced him to put into his buggy a pot of Vallota in fine bloom. It was a great cheer during the days of confinement and has made my study bright ever since. Vallota is one of the many genera into which *Amaryllis* has been divided, and some of the catalogues have it as *Amaryllis purpurea*. It is probably called "purpurea" because its flowers are of a most positive scarlet. Florists generally keep it, and the bulb-dealers furnish the dry bulbs for 75c. It is one of the few bulbs that need no particular care. All that you have to do is to keep it growing. In winter the plant does not need so much water as at other times, but it does not ask to be dried off or to be lifted or to be fussed with in any way. In autumn it will give an abundant bloom of the most cheery kind. The bulb makes offsets freely, and when they get too many for the pot the surplus may be removed and started anew. This is one of the good old-fashioned flowers that should not be lost sight of.

A NEW AMERICAN STAR-THISTLE is spoken of with approval in England—*Centaurea Americana Hallii*. The regular *Centaurea Americana* is found west of the Mississippi, and sometimes cultivated. It is a rather coarse thistle-like plant with very large heads of lilac-colored flowers. The new variety from Texas has deep magenta purple flowers. The English writers must be in error when they speak of it as "a new, fine, hardy perennial," as the typical form is only an annual.

"THE FOUNTAIN PLANT."—What has become of *Amaranthus salicifolius*, that promised so well last year? Were the summer drouths or the later rains too much for it? It did worse than nothing with me, and I have not seen at any exhibition or in private grounds a single good specimen. Several of our cultivators who were enthusiastic over it last year have given it up in disgust. I have seen specimens of what promises to be a fine thing, a hybrid between that and the *Amaranthus tricolor* which, should it be permanent, will make a garden decoration of the greatest brilliancy.

CLAPPS' FAVORITE PEAR, the "crown of glory," the culminating point of the great fruit

show at the meeting of the Pomological Society in Boston, was an enormous bowl, holding nearly a bushel of this excellent pear. For size, perfection of form, and beauty of coloring this dish of fruit was unequalled.

AMERICAN POTATOES IN ENGLAND.—While some English horticultural writers emphatically insist that none of the American potatoes are worth growing our dealers receive orders for large quantities every year. At the recent International Exhibition at Manchester, in the lot of 24 dishes which took the first prize eleven of the number were American varieties!

ALCOHOL FOR MEALY-BUGS.—Our friend John Jordan, of St. Louis, communicates to the Gardener's Monthly the fact that the mealy-bug, that pest of gardeners, can be destroyed without injury to the plants by touching the insect with a brush charged with alcohol. He uses "alcohol diluted with five per cent of water." As the alcohol sold in the shops varies some 18 per cent, it would be well to know the strength of the alcohol he starts with.

CELOSIAS OR COCKSCOMBS. These very old-fashioned plants are becoming popular again. Though they have a certain coarseness about them when closely inspected, they are capable of producing fine effects of color. The new Japanese variety introduced by James Vick, of Rochester, figured in January last, has proved satisfactory with me, being in color and habit quite distinct. In March last you published an European engraving, sent by Briggs Brothers, of Rochester, of a new variegated Cockscorn. I did not grow this, but in the grounds of Peter Henderson it is very fine, the colors being more distinct than in the engraving referred to. Some of the dwarf sorts are very neat.

CELOSIA HUTTONII, the seeds of which were sent out by Messrs. Vietch, who afterwards published a circular recalling them stating that they had been found deficient in germinating qualities, seems to have succeeded in some cases. We notice that a correspondent of an English journal speaks well of it as a decorative plant, and I know of one gardener in this country who succeeded in raising a few plants. It will be likely to perfect its seed with more certainty here than in England, and we will no doubt know more of it another season.

A DOUBLE CANNA is indeed a novelty. One is reported as having been produced by Mr. Crozy of Lyons. The plant is said to be fine, and the double flowers eminently beautiful.

TROUBLE WITH LILIES.—A few years ago I had fine lots of *Lilium longifolium* and *L. auratum*, which have been gradually growing smaller. I have heard the same complaint from my friends, and find that the same trouble exists in England. Those who wish to enjoy these fine lilies at their best will have to adopt the English plan of growing them in pots. The bulbs increase rapidly in pots, and they may be left for several years undisturbed, giving a top dressing of manure each spring. In winter the pots may be put in a pit or in a dry cellar. If desired the pots can be plunged in the borders in spring.

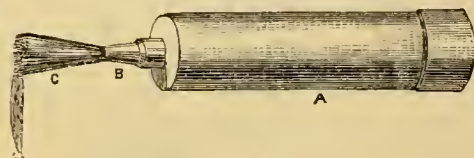
THE AMERICAN ALOE OR CENTURY PLANT is in bloom in Cornwall, Eng., where it has endured the open air for several winters.

MONEY OR SKILL, WHICH?—A question has arisen in the Horticultural Circle of Lyons

which should receive some attention at the hands of our horticultural and agricultural societies. Our correspondent, M. Jean Sisley, who was secretary of the circle, contended that only growers of plants should compete for prizes at a horticultural show, and that they should not be obliged to contend with those who were able to purchase plants for exhibition. It is an easy matter for one who has money to go about and buy up choice specimens and carry off prizes over the heads of those who show the products of their own skill. In other words, M. Sisley desired that skill and not money should be rewarded. We hold M. Sisley's position to be the right one. We have known an instance in which grapes bought in the market took a premium at a show in New York, and probably such cases are not rare. The Lyonnaise Cercle being composed largely of florists decided against M. Sisley on the ground that it was "contrary to the interests of the trade," whereupon that gentleman resigned his secretaryship.

A Water-Brush for Plants.

A correspondent of the *Gardener's Chronicle* (London) describes and figures an invention which he calls a water-brush, that he finds



A WATER-BRUSH.

useful in cleansing plants, especially roses, from the green fly, etc. Sprinkling with water and insect destroying liquids often fails to reach all the affected parts, and to be thorough one must resort to washing, which is generally a tedious operation, but one which we think might be easily performed with this implement. The can, A, is seven inches long and about two inches in diameter, provided with a cover. This holds the water, tobacco-water, or whatever liquid may be used, which flows through a small orifice in the nozzle, B, into the center of the brush, C.

The Concord Going Back.

Several years ago we published a statement with regard to a trellis of Catawba vines. The trellis was near a barn which was burned, and all the vines that were injured by the fire when they put out new shoots bore black grapes, more like the Isabella than the Catawba. Similar changes have happened in Europe, and we now add to these curious instances one from a correspondent in Michigan. All phenomena of this kind, when well authenticated, should be placed upon record, as they will no doubt ultimately be of use. Our correspondent writes:

"In the winter of 1871-2 a Concord grapevine in the grounds of R. A. Bury, of this city, which had for several years borne fruit, was killed nearly to the earth by frost. Several new shoots sprung up the next summer, and this year they have fruited, but have not produced Concords. This year's grapes are a little smaller than an average Concord, vastly more foxy than that grape both in odor and taste, and of a dull, yellow color, slightly tinged with red, resembling somewhat the

Maxatawney. The leaves of this vine are somewhat smaller than those of the Concord, thicker, less smooth on the upper surface, and more downy beneath. Now there can be no mistake as to the identity of the vine, as it stands near Mr. B.'s house, and was planted by him; nor is there any doubt that previous to this year the grapes have been Concord, Mr. B. being an intelligent gentleman whose word can not be doubted. After looking at the vine and fruit, I told Mr. B. that his Concord must have been a graft on a Fox-grape root, and the new shoots have come from below the junction of stock and graft. But to-day Mr. B. informs me that the person of whom he obtained the vine (not a nurseryman) assures him it was *not* a graft, but a layer from a Concord in his garden which had borne fruit for many years. We are aware that the Concord is a seedling of the Fox-grape so common in southern New England; but is it possible there could be a return to its original form and fruit? I think not. But you may believe to the contrary.

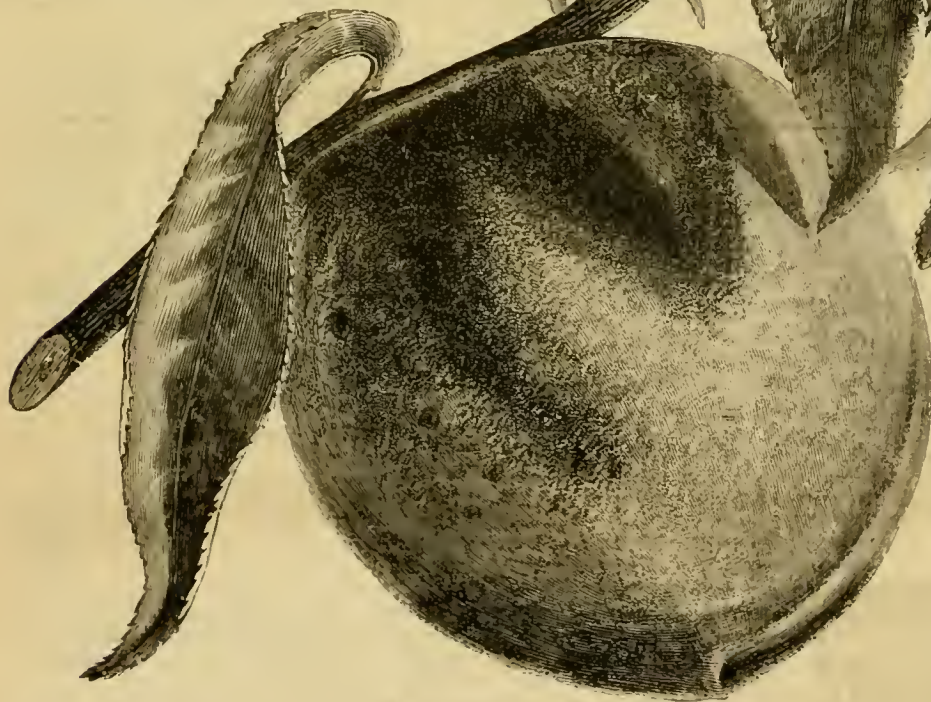
"Adrian, Mich., Sept. 19, 1873.

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The Thurber Peach.

BY P. J. BERCKMANS, AUGUSTA, GA.

[In April last we copied from the *Farmer and Gardener*, of Augusta, Ga., an account of this new peach by the editor, Mr. P. J. Berckmans. Another year's experience has confirmed Mr. Berckmans' high estimate of this variety, as shown by the following article. A



THE THURBER PEACH.

neighbor of Mr. B., M. Camille Le Hardy, a skillful amateur artist, made for us a fine water-color drawing of the fruit, which we produce in an engraving. There is no one in the country who knows more about peaches than Mr. Berckmans, and though he writes with enthusiasm about this new seedling, his verdict will be accepted by pomologists everywhere.—ED.]

The catalogue of the good Southern peaches has assumed such an extent that there needs be rather an elimination than additions to it. Within the past fifteen years numerous varieties have been denominated, whose aggregate number swells the list to repletion. Still some

varieties are susceptible of improvement, although they seem to have attained that degree of perfection allotted to their class. When the Chinese Cling was introduced, now nearly twenty years since, Southern gardens received one of the most valuable fruits in existence, as this variety surpasses in quality and appearance any cling of its season, and is not equaled by any of the numerous clingstones which succeed one another throughout the months of July

original tree is of a most perfect pyramidal shape, having diverged from the usual straggling habit of growth of the Chinese Cling and nearly all its offspring, a defect which prevented this variety from being available where symmetrical growth was desired. Fruit large to very large, often measuring ten inches in circumference; round or slightly oblong. Skin creamy white, beautifully mottled or marbled with carmine on a faint pink check.

Flesh white, extremely juicy, dissolving, sweet and highly perfumed, quality exquisite. Unlike the Persian strain of clingstone peaches, the flesh of the Chinese types is of a peculiar fine-grained texture which dissolves without leaving any sediment, and the Thurber peach possesses this quality in a high degree. Maturity from July 15th to August 1st in Georgia. Although this variety matures at a season when peaches are in great abundance, its transcendent quality and appearance will always give it the front rank among the best freestone varieties of its period of maturity, and it will at no distant day become one of our best known sorts whether for market or amateur culture.

and August. Numerous experiments have been made for years past with a view to improve the Chinese Cling, but the seedlings proved invariably similar to the type or with only slight modifications therefrom. At last, after a series of experiments, Dr. L. E. Berckmans succeeded in producing some forty freestone seedlings, all resembling the parent type in appearance, but differing slightly as to size and habit of growth, all, however, classing as very good to best. Out of this number one seedling was selected as combining unusual merits, and, by permission of the grower, the name which heads this notice given to it. The

Nearly four hundred seedling peaches have been submitted to the writer of this notice during the past three years. Many of these were of excellent quality, but either reproductions of our well-known varieties or lacking some slight requisite to compete with those already known. Out of this large number of selected seedlings three only have been retained. Foremost among these we rank the Thurber. In bringing this new peach before the public we have no hesitation as regards its ultimate popularity. We have fully tested its merits, as we did those of the Picquet, now recognized as the best yellow freestone peach of its season, and which has superseded all the older varieties of its class when grown together with them.

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

What Shall we have for Breakfast?

The question given above is one of daily occurrence. In most families there is a great tendency to fall into monotony and run the changes on a few articles. Those of us who live in the country must have an early breakfast, and this precludes any elaborate preparation, and the tendency is to select that which can be most readily prepared. We would like a bill of fare for breakfasts for a week, to be made as varied as possible, to include only one dish of meat at each breakfast, and to be easily and quickly prepared. To the lady who will send us the best bill of fare of this kind we will send the *Agriculturist* for 1871. Should there be more than one list of particular excellence we will send the same acknowledgment to the others. All bills of fare to reach us before December 1st, marked "Household" upon the envelope.

Rustic Window-Boxes.

Some of the readers of the Household Department may think that window boxes should be treated of in that portion of the paper devoted to horticulture. We have a very decided notion that any such household adornments are usually instigated by the lady of the house, if they are not made by her, and if we enforced the value of window-boxes elsewhere the matter might escape the eyes of those for whom it was especially intended. Many of our readers would have flowers in their rooms if it were not for the trouble entailed by a number of pots. The earth in pots soon dries out and separates, and frequent watering, with its attendant drip and "muss," makes the care of them a task. When a cold snap comes on it is often necessary, especially in country houses, to remove the plants to some warmer quarter, and the carrying about of a dozen or two pots is no light task. Then pots of themselves are undeniably unsightly, unless one buys very expensive ones; and if they are not filled with plants that are particularly attractive, the collection as a whole, pots and plants, is not altogether satisfactory as an ornament to the dwelling. All of these objections may be overcome by the use of window-boxes. The earth does not dry out rapidly; if the plants must be moved they can all be lifted at once; the box can be made of a pleasing appearance and an ornament in itself should the plants not be especially attractive, or even if it contained no plants at all. We have in former years given designs for finely finished window-boxes, but we have recently seen at the store of B. K. Bliss & Sons some on sale to city customers that we think would suit our rural readers exactly, as they can be made by almost any one.

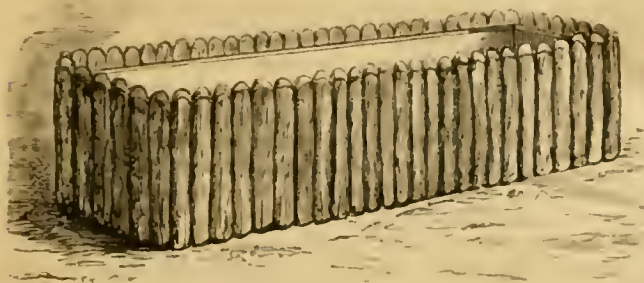


Fig. 1.—BOX COVERED WITH CEDAR STICKS.

They are so thoroughly rustic that we have had engravings made of them as a guide to those who wish to try their hands—or to direct somebody else to try his hands—at making them. The foundation in all cases is a box of sound pine, which need not of necessity be planed. The size of the box should have reference to that of the window.

Some windows have sills broad enough to hold the box, but where this is not the case it may rest upon a couple of brackets screwed to the wall. Wooden brackets may be used, or cast-iron ones, which may be had at a cheap rate at the large hardware stores. The box should be thoroughly nailed, and strong in its make. Then it is to be covered, and our engravings show three styles of doing it. In figure 1 cedar sticks, straight and of

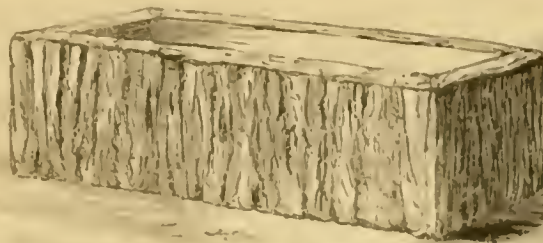


Fig. 2.—BOX COVERED WITH BARK.

the same size, are split in halves, the bark left on, and firmly nailed to the box. In figure 2 is shown what is to our taste an exceedingly beautiful box. It is covered with some well-marked bark; in the case of the one figured that of the White-wood or Tulip-tree, common throughout all the Western States, is used. The engraving shows the manner of laying it on. Figure 3 shows a more elaborate style, which in reality is more effective than can be shown in the engraving. The ornamentation here is done with halved sticks, those shown light being of white birch, the silvery bark of which showed in strong contrast with the darker pieces, which are apparently laurel or some dark-barked wood. In this last case the wood was varnished, which we do not consider an improvement. Either of these boxes is of a most pleasing exterior, and



Fig. 3.—BOX WITH MOSAIC WORK.

while it would not seem out of place in the most elegant parlor, would grace and add an air of refinement to the humblest kitchen. So much for the outside of the box, which any one who really sets herself about it can accomplish without difficulty. As to the inside: If you wish to do the best thing, get a pan of sheet zinc or galvanized iron made to exactly fit it. If this expense should not be warranted use the box without it, but in case of over-watering it may drip, and if not thoroughly and carefully nailed the sides may warp; but a little foresight will avoid these difficulties. A good mechanic can make a box quite water-tight by putting thick white-lead or a strip of paper dipped in tar between the joints before nailing. Now, to fill it, put in the bottom—whether it has a pan or

not—an inch or two in depth, according to size, of broken flower-pots if you have them, if not, bricks broken to the size of walnuts, or if neither of these be available use small stones or hard coal. This is what gardeners call drainage. Then over this a layer of moss, of any kind, sufficient to keep the earth from working down among the

drainage. The reason for this preparation is: If the earth should happen to receive too much water the excess will pass down into this bottom layer and the roots of the plants receive no injury. For the earth the object must be to have it moderately rich and so porous that it will not bake hard. Good garden soil may do without addition; if heavy, mix some sand. Earth from the woods, garden soil, and sand mixed in proportions to make

a light porous soil will be capital. The plants we shall not try to enumerate. Suffice it to say that any of the plants usually grown in the house in pots will do well in such a box, and each one will have her own preference. If one has no house plants, and can not readily procure them, a box of this kind may be made an object of beauty and interest without expense. Go to the woods and take up sods of moss that have Purtilidge-ber-

ry, Princess-pine, and such plants, or get cranberry plants from the bogs, or even strawberry plants from the garden. With green moss, such ferns as appear to be evergreen, and low-growing plants from the woods, a fine cherry bit of green may be kept up all winter, only a box filled in this way should not be kept in a very warm room. Our object was to describe the box and not its filling, that being a matter that few of our readers will find any trouble with.

Home Topics.

ST. FAITH, ROCHESTER.

BOARDING ONE'S SELF AT SCHOOL.—The expense of boarding keeps many farmers' sons and daughters from the high schools, academies, and colleges of the towns. At many of the Western State universities the tuition is free, but money goes fast for board bills. Very few families take boarders from motives of pure philanthropy. They do it to make money, and they do make money unless there is great waste in their management. Boarding clubs are sometimes established by young men. They obtain cheap lodgings and take their meals together at some

place where a woman (or a man) is employed to cook for them, the expense of the provisions and of the cook's wages being divided equally among the members.

A cheaper way of getting along is to keep house for one's self, having one or two or more companions to lessen the expense and to make a cheerful company. If I had not tried this way I should probably have had a year's schooling less than I was able to obtain by the aid of such management. I remember that my pride rebelled when such a thing was first suggested to me—it looked so poor! But when my ambition to learn was fairly aroused I came to a different mind.

One can get along amazingly cheap so, if rents are at all reasonable, especially if the folks at home co-operate by sending provisions at intervals. There is pleasure in it too, if properly managed.

But such a course has its perils. Young people who know something about the laws of health can sometimes supply themselves with more wholesome food than the boarding-houses usually furnish. If they have the use of a good oven they can bake a big batch of bread on Saturday and bake graham gems and Johnny cakes between times. They might make griddle cakes, but if their clothing and books are in the same room with their cooking, the frying of any kind of food—anything which produces burned fat—will cause the cooks to carry an unpleasant and too suggestive perfume about.

Mush of various kinds—corn-meal, graham, oat-meal—is cheap and easily made, and is wholesome food if eaten with a very simple dressing. Milk alone is usually its best accompaniment. Beefsteak might be broiled once or twice a week—with a patent-covered broiler there need be no strong odor in the room—but as the object of self-board-ing is chiefly to live cheaply, steak would rank among the luxuries. A soup bone with considerable lean meat to boil all of Saturday forenoon making a good dinner soup (with every bit of fat skim-med off) and a nice meat-hash for one or two breakfasts would be cheaper. Dried beef from home would work in well. With plenty of apples to bake and stew and to eat raw there would be no very expensive fruit needed.

Now let me speak of the perils. Irregularity of meals is one of the greatest, and this is likely to produce dyspepsia, and dyspepsia and brain work never go well together. There is danger of living too much on cold food—on "light victuals" sent in boxes from home—on cakes and cookies, and pies and doughnuts, and tarts and preserves—all of which should be almost entirely omitted from the student's bill of fare. It is better that two or more keep house in company, because one alone is more apt to neglect the needs of the stomach, is tempted to study while eating, and eats too hastily and too solemnly.

The little student company who keep house together should be unanimous in trying to keep up the good name of their firm for punctuality, good scholarship, and correct behavior.

PLENTY OF WATER FOR WASHING.—There are various labor-saving soaps and machines, but no way has ever been invented for making soiled clothing clean without plenty of water. This makes washing a great task to those who have to bring their water from a distance, or who have not the strength to lift many pailfuls of water even when it is close at hand. I do not wonder in the least that girls inquire of their mistress before taking places in families whether the washing is large, and whether there are stationary tubs with hot and cold water conveyed in pipes. When the water has to be brought several rods in pails, up a hill or up-stairs it may be, a foolish washerwoman will sometimes omit or sadly slight some very necessary processes in the washing. I have seen one try to rinse a whole large washing in only two pailfuls of water. I know one who will sometimes wring the clothes from the sudsing water (or the first water after the clothes come from the boiler), and hang them at once upon the line, if a supply of water is not easily obtained.

A large frost-proof cistern of soft water seems to me one of the first necessities of a well-ordered household. I would rather live in the humblest cot and have that, than to live in a large fine house and be stinted for water.

SOME OTHER MISTAKES IN WASHING.—The directions for washing with the machines almost always advise very hot or boiling suds. But remember never to put dirty clothes into clear hot water. It "sets the dirt," and you must work very hard to get the clothes clean after such a mistake. Some fruit stains are removed by pouring boiling water through the spot, but some other stains are hopelessly "set" by such means. It seems to me the safest way either to have the water in which clothes are washed no hotter than the hands can bear or to have the soiled clothes wet in either cold or warm water before putting them into hot suds—at least to see that table linen and garments are not put into hot suds with dry stains upon them.

Fine clothes are sometimes spoiled by boiling in hard water. Housekeepers may be obliged to wash with hard water, but it should be first made soft by alkali. The most common way is to add a little lye (white lye usually made by boiling ashes in water) to each boilerful of water, skimming it as it boils. Washing-soda is used for the same purpose. In any case skim the water, and boil the clothes in a bag. Clothes once made gray and spotted by boiling in hard water can never be made to look very well again. Another mistake is to boil the

clothes too long. Fifteen minutes of good boiling will do. Half an hour is the very longest time that should be allowed. Too long boiling makes the clothes yellow and tender. Too strong a boiling suds may have the same effect.

WASHING PAINT AFTER FLY-TIME.—No great amount of labor is requisite for cleaning the traces of flies from paint or wood-work. No soap is necessary. I wet the door or window-frame all over with a cloth that will not drip. Then I go back to the place where I began and wash the whole over very quickly and easily, then use a clean dry cloth. I should not think of mentioning this, but the other day I saw a hired girl of considerable experience rubbing hard and long upon a door, and sighing because fly-spots were so hard to wash off—simply because she did not think to put the work "asoak." Not long before I saw a man undertake to clean, and greatly injure, a painted piece of furniture covered with the marks of last year's fly-time, by rubbing a coat of soap all over it and then washing off soap and paint and dirt together. Cold water alone would have cleaned it better. Soap always injures paint more or less. A little applied under the door-knobs and immediately washed away is sometimes admissible. Whiting on a flannel cloth is recommended as still better. Soap-suds yellows white paint and dulls the luster of all paint and varnish. Clear water, either cold or rather warm, is all that varnished graining needs.

A HIRED GIRL'S GRIEVANCE.—"Do you know how to make good bread?" asked Annie's new mistress. "Yes, I can make good bread," said Annie, "but I want to make my own yeast or else use the dry yeast-cakes." "But I use baker's yeast," said the mistress. "I hate to use it," said Annie, "the dough is so apt to sour." "That is very true," was the reply, "it will hardly do to mix the sponge at night in such hot weather." "Let me run down to the grocery and get some yeast-cakes. I used those at my last place and they made very nice bread—very light and always sweet."

So Annie begged and she was allowed to have her way. She went to work as though she knew what she was about, and the mistress would not interfere though she had her fears for the bread at two or three points during the process of making. But it came out "just beautiful." Then Annie, who had seemed very anxious that her bread should be just right, told a bit of her experience. She went to work for one woman who would not let her make bread in her own way but directed her at every step, and between them both they always spoiled the bread, and Annie was blamed for it every time, especially as she had said, when hired, that she could make good bread. Her mistress made the bread alone one day, and Annie says it was very poor stuff compared with what she knew she could make if allowed to do it in her own way. She heard her mistress tell her husband and tell some of the neighbors that Annie "could not make a loaf of bread," and she was "so shamed" that she took the first pretext for leaving the place, and ever since has been praised as a bread-maker, as she often had been before. It is quite fair to let a hired girl, who really has had some experience, try her own way the first time, and if it proves a poorer way than ours we can teach her better, and she will perhaps appreciate the lesson.

POP-CORN AT DESSERT.—I think I need not tell how to pop corn, need I? It is the best way to have a corn-popper; then you can watch the progress of the corn and vary the degree of heat as seems necessary. Many imagine that the pop-corn is more tender or brittle if taken from the hot fire and shaken about in the cold air as quickly as possible. Children are apt to stuff themselves with pop-corn when they are not in the least need of a meal. Pop-corn is food, and such a crowded condition of the stomach produces discomfort, and so pop-corn is supposed to be unwholesome. It is quite the contrary if eaten as food with the regular meal and properly chewed. Try it with milk and apple-sauce or with any good fruit-sauce.

JOHNNY-CAKE WITHOUT EGGS.—I found out for

myself, long ago, that delicious corn cakes could be made of sweet new meal without eggs; and I didn't know but everybody else knew the same. I used to scald the meal mixed with a little salt with just as little boiling water as would wet all of the meal. This mixture I thinned a little with milk or cold water, sometimes adding half a teaspoon or more of wheat flour. Then I baked it in gem pans in a hot oven. These corn gems are good too!—when the meal is fresh and sweet.

Lately I have been trying to use up some fine white corn-meal that seemed a trifle bitter. There was little sweetness in it to bring out by scalding, and I wanted to disguise the slight bitterness. So I went to the receipt-books. They all dictated eggs and butter or lard. It was impossible for me to get fresh eggs (I threw away four of the last half-dozen, and have lived for six weeks using only three eggs obtained from a neighbor), and "shortening" is one of the things I steer as clear of as possible. So this is the way we made good johnny-cake under the circumstances described above.

Scald about a pint of meal at night with boiling water. In the morning thin it with milk, add a tea-spoon of salt (only level full) a big table-spoonful of sugar, and, lastly, a teaspoonful of sifted white flour well mixed with a teaspoonful of baking powder. The batter should be rather thicker than for griddle cakes as the meal has swelled some during the night, and no allowance need be made for that. I can not see where the necessity for shortening comes in as these johnny-cakes are certainly tender. A little cream spread over the crust improves it. The above recipe makes two thin cakes if baked in common "square tins." When the milk is sour, soda (in the proportion of a small tea-spoonful of soda to a large pint of milk) is used instead of baking-powder.

ECONOMY IN COOKING.—I sometimes meet people who seem to think that all economy, especially in cooking, is meanness. People who have everything to buy soon learn if they are attentive that butter and eggs and sugar are very expensive items in the family. They are all good in their place, but they are often used so freely as to interfere greatly with the comfort and prosperity of the family. "Lucy Maria" observes that "housekeepers add grease and sweetening at the approach of company." It does seem that some people imagine that good cooking consists in using a great proportion of shortening, sweetening, and lightening in the way of butter, lard, and eggs. They pile these into things that would be quite good enough and far more digestible without them. Are these the people who can not afford to buy nice fruit—to say nothing of books and newspapers? Are they the ones who think it extravagant to get good playthings for the children?

Cleaning Coat-Collars.—A correspondent, "H. T. B.," in the far-off land of Tasmania sends what she considers the best method of cleaning coat-collars: "Take a piece of ammonia-stone (carbonate of ammonia) the size of a walnut and put it in a cup of warm water. When dissolved, take a piece of clean flannel and dip it in the solution and rub the collar two or three times with it. It will also remove the glossy appearance along the seams and upon the elbows."

Feather Beds.—A. Cook, Wood Co., O. Those who make it a business of renovating feathers put them into a cylinder of perforated sheet-iron large enough to hold the contents of a tick. This is revolved until all the dust is sifted out from the feathers, and is then revolved for a while over a slow charcoal fire. The hot air and the motion make the feathers very light. In the family this is not practicable. The nearest approach to it would be to sift the dust from the feathers, and then expose them in a tick thoroughly to the sun and let them air well, giving occasional thorough beatings. Can any of our readers suggest any better treatment for an old feather bed?

BOYS & GIRLS' COLUMNS.

To the Boys and Girls.

Aunt Sue has labored so patiently over the almost innumerable prize puzzle that we think it only right that she should have space to show the results of her labors. This, of course, prevents our giving the usual variety in the Boys and Girls' Columns, but we can manage for once without it. The Doctor begins one of his series of talks, and we think if the young folks follow him up they will learn something of use. Indeed, we think that his talk about Limestone will interest the fathers as well as the youngsters.

The Doctor's Talks.

ABOUT A PIECE OF LIMESTONE.

Some of the young people write to say that they would like other articles similar to those about a candle. That is right. I like to have them tell me what they want, and I am glad that they show a desire to have some instruction mingled with their amusement. I think that it is best to talk of very common things, for there is a great deal in matters that we see every day that is new to some of us. This time it shall be a bit of limestone. There are but few places in which limestone in some form can not be had. In some parts of the country almost all the rocks are limestone. But how shall you be sure that a specimen that you have is of this? Limestone is often white, but it is found of a gray or yellowish color, sometimes bluish, and through various shades and colors up to black. So it will be seen that the color is not a sure guide. Indeed, limestone presents such a variety of forms and colors that it is difficult to tell you how to know it at sight. All the forms are easily scratched by a knife, although some are much harder than others. Whether hard or soft, white or colored, all kinds of limestone are pretty much the same thing, and are made up of lime and something else which we shall talk about by and by. These various kinds have different names. Chalk is a very soft kind of limestone, so soft that it makes a mark when rubbed upon a board or other hard surface. You will not be likely to find any chalk in your searches, as all that is used is imported from other countries. I shall try to show you at another time that chalk is a very peculiar and interesting kind of limestone. Many pieces when broken show a surface that appears to be made up of little grains, and looks very much like lump-sugar. This is called *granular limestone*. The grains may be coarse or very fine, and be held together firmly or so loosely that the stone is soft and crumbly. The finest kinds of granular limestone are called *marble*, which you know is pure white or of various colors. Then there are some marbles that do not show any grain, which are varieties of what is called *compact limestone*; *shell marble* shows plainly the remains of shells. In some limestone regions crystals are found, some of which are as transparent as glass, and specimens that are nearly transparent with a luster like satin. These crystals are called *Iceland Spar*, *Dog-tooth Spar*, *Satin Spar*, and by other names. Well, you will think that there are so many kinds of limestone that it will be very hard for you to decide whether a stone is limestone or not. Yet this is the very thing that I wish you to do, as I want each one of you who cares to learn anything about limestone—and every one ought to wish to know about such a common and useful thing—to get a specimen of some kind of it. No matter which of the varieties, but try and get some lumps: pieces as big as a hen's egg will answer our purpose. It will be all the more interesting if you can find them among the rocks and stones of the neighborhood. Any intelligent person will tell you if it is any use to hunt for limestone in the vicinity, as there are some localities where it can not be found at all. Those who live where there is none can get a bit of marble from the village stone-cutter, or if nothing better can be had, a lump of chalk. I have said that all the different kinds are so soft that they can be scratched with the pocket-knife, and that they differ much in hardness—marble being much harder than chalk. There are, however, other soft stones that are not limestone, and this is not a sure test. Here is another test: Put a bit of the stone into a wine-glass or small vial—a bit as large as a small pea will do—and pour over it some very strong vinegar, say a table-spoonful or so. If the bit is limestone you will see it *effervesce*—that is, small bubbles will be given off from it and rise through the vinegar. These bubbles will be very small, smaller than pins' heads, and you will have to hold the glass up to the light in order to see them. After some hours the bit of limestone will have grown smaller, and in time it will nearly all dissolve. I say nearly all, as there are usually some impurities left. With some of the hard limestones this action takes place very slowly, and you will be obliged to pound your bit to powder before trying the vinegar—which you can easily do with a hammer and a hard flat stone.

The vinegar should be very strong. Vinegar, you know, is an *acid*; there are other acids that will dissolve the limestone more quickly and show the bubbles more plainly than vinegar, but I do not think your parents would like to have you use them; besides, it is much better to make experiments as simple as possible, and with common things that every one has. When you have found your specimen of limestone of some kind, be it marble, chalk, or common limestone, we will try to find out more about it. Let us see what we have learned thus far: Limestone varies a great deal as to *color*, *texture*, and *hardness*, but all kinds are so soft that they can be scratched by a knife. It is acted upon by vinegar and other acids, and gives off bubbles. Vinegar dissolves it. This will do for our introduction to the limestone.

THE DOCTOR.

The Award of Prizes.

BY AUNT SUE.

I am very sorry I ever thought of offering prizes for "the greatest number of rivers found in the name of any one mountain." I have not minded the trouble, as I have had much kind assistance in my geographical researches, but my feelings have been harrowed up frequently when receiving letters pertaining to the competition. Some from little children in the country with their dozen or two of rivers culled from their school atlases. Some from invalids, and I dare say their backs ached while poring over the maps (I'm so sorry). Long lists from "Ranges," all valueless because the parties had not fully understood the proposition concerning the "one mountain." One of these lists was from a young man with weak eyes. Now, just fancy the task of looking through a map for names printed in the *smallest* kind of type, with weak eyes! The only consolation I have is that every seeker has been a gainer in geographical information, and as for myself—just ask me where any place or river is! I never was so posted on geography in my life.

I have been requested to publish the lists of rivers winning the prizes, and I think it only fair to do so. I would here state that every name published has been found and seen by my assistants or myself in the authorities given by the parties sending the lists. It would take too much space to give the countries, so you must be content with merely the names of the rivers and lakes; the latter are in italics.

The longest list (after pruning it of gulfs, bays, brooks, creeks, wadies, and estuaries, and leaving only such as were called in atlases and gazetteers "rivers and lakes") embraces 536 names, made out of the mountain "Skagstolstinderne." Thirty-one more names have been added by different students, so that the supply was not exhausted in the first list.

The first three prizes are won on the above-named mountain; the last three on "Grand Colombier."

The names of the successful competitors are:

1. Adolph B. Clayton, Halifax, N. S.
2. Jeannie V. B. Greene, Long Branch, N. J.
3. Sadie R. Weyman, Pittsburgh, Pa.
4. Henry W. Simonson, Tarin, Lewis Co., N. Y.
5. Addie W. McCabe, Clinton, Conn.
6. Minnie F. Beardsley, Addison, Lenawee Co., Mich.

MOUNTAIN.—SKAGSTOLSTINDERNE.

Rivers and Lakes.

Aln	Gabr	Lone	Sangro
Alden	Gard	Loun	Sark
Agri	Gardon	Lorto	Seal
Arklet	Gallia	Larto	Surnen
Atrek	Garonne	Line	Sarine
Anio	Gironde	Ladoga	Sang Koi
Ale	Genil	Lark	Sedger
Aline	Gidea	Legnet	Segars
Ainess	Gers	Lek	Seena
Adige	Gera	Lang	Ser
Agno	Gote	Lined	Sir
Ain	Gila	Lease	Sego
Aire	Gir	Lartine	Segre
Aisne	Glan	Longart	Selma
Aide	Glenade	Nalra	Sena
Aiel	Gota	Nalon	Senne
Aine	Glatt	Nar	Senio
Alt	Glea	Nare	Selenga
Alster	Goil	Nari	Selennak
Alten	Gorn	Naro	Sencal
Altia	Gran	Naso	Senoi
Anto	Grand	Negro	Serain
Arif	Green	Natron	Serain
Argens	Greta	Neisse	Seran
Arige	Grona	Nitaa	Sered
Arinos	Gar	Nelson	Serido
Arno	Gan	Nenc	Serilo
Arnon	Gina	Nera	Sesia
Aro	Greene	Neri	Sestre
Asone	Gilo	Nero	Sestra
Assinee	Golden	Ness	Sin
Astoro	Godia's	Nessa	Soona
Alterno	Grass	Nesse	Setung
Astion	Gare	Neste	Sienne
Attri	Grant	Nestas	Sinde
Atro	Great	Neto	Sinno
Aeron	Glass	Nieto	Sinno
Aile	Idle	Nida	Solther
Ae	Itro	Nied	Siak
Arik	Iga	Nasi	Sieg
Adonls	Ik	Nagor	Silo
Adler	Ikoretz	Neale	Sind
Asner	Hek	Negrain	Sil
Dal	Indal	Niger	Sinn
	Ingola	Nen	Sit

Danger	Innerste	Nai	Soar
Dan	Istocr	Non	Soda
Darling	Iron	Nil	Sone
Dart	Ina	Nile	Soane
Dee	Ist	Nisao	Stor
Deen	Issa	Nisao	Stora
Deer	Isar	Nilo	Storan
Dean	Israel's	No	Strong
Dense	Iorsa	Nelo	Salo
Drug	Indre	Ngo	Sana
Dus	Iscr	Nore	Strel
Derkos	Iaco	Nora	Strichna
Derna	Iscer	Oder	Skagern
Drina	Isot	Olat	Sisla
Detroit	Isla	Oclair	Stennes
Dies	Isle	Oikel	Slate
Dina	Isker	Oise	Sarso
Dog	Istokoe	Oka	Sele
Dori	Island	Olenek	Sok
Drage	Inner	Oisa	Stoke
Drause	Ister	Ona	Storsa
Drin	Itenes	Or	Saone
Droune	Isset	Orel	Sona
Dune	Indals	Orlik	Skene
Duro	Isen	Ossa	Seadg
Dargle	Isen	Ossa	Tietar
Demett	Ilen	Oste	Tagil
Dragon	Iton	Orta	Takinos
Dastl	Ise	Orne	Tal
Berg	King	Orange	Tardes
Doree	Kado	Orca	Tarn
Duister	Kel	Orca	Taro
Deel	Ken	Ornatu	Tees
Desire	Ket	Ossin	Teesta
Eagle	Keta	Ossin	Teign
Eask	Kent	Oster	Tensas
Erisa	Konnet	Oskats	Teoge
Eisort	Keret	Ossin	Ter
Eager	Kern	Ossage	Terek
Eika	Kali	Ori	Tesino
Eske	Katrine	Ostr	Tessiu
Eria	Kola	Olese	Tese
Esk	Konda	Otilil	Tet
Eisa	Kiengra	Otiler	Tidan
Elk	Kleudar	Orit	Tietar
Erie	Kinc	Oring	Tiete
Ellis	Kistna	Old	Tiger
El	Kosa	Rassid	Tigre
Elder	Kings	Rodding	Tiksa
Eger	Klar	Reisen	Tloga
Eis	Koli	Rode	Tara
Eino	Kule	Rinde	Telos
Es	Kalon	Roder	Tok
Elde	Lane	Roderg	Tone
Eel	Lando	Roden	Tornea
Eden	Lene	Rossa	Tosa
East	Lagno	Rinu	Tosna
Eyon	Lanco	Rode	Trasen
Ega	Lao	Regis	Trent
Este	Lea	Ros	Tricut
Esker	Leda	Roag	Trigno
Esla	Lee	Rion	Teton
Eudless	Larke	Red	Tinto
Euns	Lundre	Rea	Tera
Ergat	Leche	Reno	Tengri
El Ain	Lekta	Rott	Tesling
Elon	Lena	Rea	Telek
Esteras	Lome	Real	Tralin
E-tena	Leon	Rega	Torto
Eltas	Lesina	Regen	Terne
Esera	Liane	Rege An	Tes
Egges	Lika	Ross	Tirso
Earle	Loa	Rat	Tai
Erkina	Loir	Roe	Tes
Egeri	Loire	Roes	Talt
Elisak	Loing	Sor	Treig
Edisto	Loire	Sark	Treke
Edes	Lo Kiang	Sido	Tesa
Elkos	Leane	Sid	Tso
Elster	Liards	Sang	Tar
Enave	Loke	Srang	Tail
Erkene	Leader	Salis	Tarkco
Erne	Largo	Silano	Tito
Esnig	Long	Silino	Tolka
Eunel	Lora	Sidor	Tolten
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Elorn	Lossie	Salt	Tsano
Gade	Lost	San	Tons
Gail	Lot	Sango	Trade—536

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Adi	Colne	Gimone	Mobile
Aln	Congo	Gomera	Modor
Alde	Coon	Gander	Mora
Almond	Cyane	Gero	Niger
Aine	Coprib	Gorn	Nile
Amoo	Cloot	Grand	Nogal
Ancobur	Cairn	Grona	Nagani
Arc	Cyran	Iao	Nagor
Arco	Caroni	Ibar	Nilo
Arno	Cono	Ica	Nar
Aron	Carina	Ilen	Nora
Amor	Carion	Indre	Naco
Anlo	Cea	Ingodo	Nai
Ar	Cron	Iron	Narop
Anilore	Corula	Ingoon	Nari
Artoon	Celano	Iogoor	Negro
Adler	Comer	India	Ngo
Aeron	Cleat	Imet	Njo
Aiden	Delo	Ilm	Noro
Aile	Drage	Idle	Nore
Ala	Dibog	Ingoda	Nogoa
Ala	Dra	Loan	Nare
Ae	Drome	Leeb	Naro
Ale	Dome	Leia	Nera
Amoor	Drin	Lug	Neri
Brad	Drina	Lora	Nida
Bo	Dane	Loir	Nied
Penl	Don	Loire	Nil
Bio	Dobcor	Loa	Nero
Blanco	Dal	Lao	Namoi
Blaeco	Dale	Lashorec	Ore
Bocoo	Dera	Largo	Oregon
Bega	Doonbeg	Lima	Obiou
Baro	Dan	La Mine	Obi
Borora	Dargle	Lena	Obra
Bielo	Doo	Lob Nor	Ocala
Bardo	Dromore	Limo	Odemira
Bolmen	Doon	Long	Oder
Barren	Dearborn	Lan	Odil
Boro	Dema	Lone	Oglio
Bride	Dog	Legu	Old
Beg	Doron	Lerna	Ombrone
Borgie	Doorn	Lomond	
Brau	Drag		



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Av	Danger	Largo	Olla
Broom	Doab	Looga	Orel
Boone	Doob	Looe	Onega
Bad	Darling	Line	Onelda
Bogdoin	Deaa	Ling	Oo
Bail	Deira	Lomane	Orange
Barringo	Dembia	Lomica	Orbiga
Benr	Droma	Loon	Orb
Big	Dolce	Lugdo An	Ori
Biz Racoon	Elm	Lube	Orne
Bogau	Earn	Luber	Olgon
Borgue	Ebro	Lambro	Orluz
Boil	Ega	Lar	Ora
Blegno	Eull	Lamone	Obe
Bog	Ed	Leda	Reb
Bagle	Eria	Locarno	Rea
Bormida	End	Leon	Ramor
Borne	El	Malor	Robe
Braceo	Em An	Macon	Roman
Broad	Enbia	Mad	Roden
Bar	Eno	Magro	Rena
Basoor	El Alu	Maline	Rion
Calool	Elaou	Main	Rima
Gabriel	Elora	Marcoln	Roneador
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Calote	Grande	Megilno	Rice
Cun	Gard	Mil Coon	Ried
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Cologne	Gall	Mono	Roaring
Caribon	Gllaa	Mon	Rena
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Cedur	Glen	Moosi	Rinde
Colate	Glencar	Moore	Roneo
Cega	Gatr	Moroa	Rion
Cimarroa	Gott	Moir	Roding
Claln	Gatrdner	Monar	Roag
Coen	Gau	More	Rea
Claa	Gar	More	Rea
		Marce	

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A. B. C. sends 536 names; Jeannie V. B. G., 531; Sadie R. W., 530; H. L. S., 391; A. W. McC., 389; M. F. B., 387.

Next to these, and deserving especial mention, are Robt. N. Farwell ("Great Saint Bernard"), 354; G. W. Fanning, 357; M. L. E., 356; Kittle M. C., 355; Amy R.

Edwards, 331; Mary F. Sinclair, 330; Kate E. S., 319; F. R. Gardner, 318; "Kitty Clover," 315; and Hudson S. Day, 309. For other names see page 437.

About Bats.

But few boys and girls, especially if they live in the country, have not witnessed a scene like that shown in the engraving. Of a summer evening there is found to be something silently flitting about the room, and soon the alarm is given of "a bat! a bat!" and all is at once confusion. The whole household is in arms with brooms, towels, and other handy weapons, and engaged in a very unequal battle with the quiet visitor. The result of the conflict is to drive out the bat, or more commonly, we fear, to maim or kill it. Sometimes, a wing being broken, the animal drops to the floor, and one of its thoughtless enemies, courageous enough when he thinks the poor creature dead, picks up the maimed body, and gets a sharp nip as a small reward for his cruelty. When the battle is all over, and the enemy killed, did you ever look to see what a beautiful creature had been needlessly destroyed? There are several kinds of bats found in the United States, some in the Southern States and on the Pacific coast being quite different in many respects from the kinds common in the Eastern States. They all agree in having most curious and delicate wings. The fingers are wonderfully long, and the membrane or skin which forms the wing begins at the neck and is spread from one finger to the other, and in our common bats passes around the body so as to take in the tail. What would correspond to the thumb in the bat is very short, and has a sharp hook at the end. The hind feet are very weak, and have five toes armed with sharp claws. A bat makes a very clumsy figure when it attempts to walk, and shuffles along in an amusing manner, but on the wing it moves about with wonderful grace and agility.

Then you will notice what exceedingly small eyes bats have, but what they seem to lack in the sense of sight is more than made up to them in that of hearing, the ears in all being very large. So sensitive are both ears and wings, that when the animal is completely blindfolded by a strap of leather over its eyes it will fly through rooms and crooked passages without once hitting the walls or any obstacle that may be placed in its way. During the day the bats hide in caves, old buildings, hollow trees, and other dark places, and come out only at night in search of their food. When at rest they hang by the hooks upon their wings or by their hind feet, and they sometimes hang to one another and form large masses. In cold climates they pass the winter in a torpid state suspended in this way. The writer once lived near a ruined church in one of the Southern States where the bats congregated in countless thousands. When disturbed the chirping they made was almost deafening. They had been there in undisturbed possession so long that their droppings covered the floor to the depth of some two feet. Some of the bats of the tropics have the reputation of attacking man, when asleep, and domestic animals for the purpose of feeding upon their blood; but all of our bats are not only perfectly harmless, but are really useful little animals. When they are seen darting about in the dusk, with such rapid turnings and apparently mysterious movements, they are in pursuit of insects, which form the food of all our species. Living in dark and lonesome places by day, and only flying about noiselessly by night, it is no wonder that in older times the people were superstitious about bats, but since they have been studied and we know more about them there is no reason to regard them with dread. When a bat enters a room, probably in chase of some injurious insect, it is hardly fair to treat it as an enemy; but it would be much better to politely lower the tops of the windows and let it depart unharmed.



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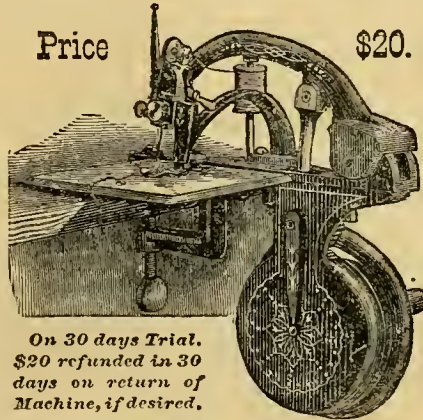
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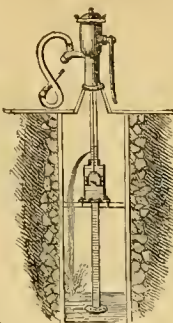
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is a better tool for cutting glass than anything ever offered for the purpose. Any child can use it. Every housekeeper, farmer, and mechanic should have one. Sent in neat box, prepaid, to any address upon receipt of 50 cents and letter-stamp by **ALVAN L. LOVEJOY,**
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Chains, Rings, Pencils, Studs, Sleeve-Buttons, Pens, Silver-Plated Ware, etc., etc.

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AGENTS WANTED for a complete history of our National Capital. Its origin, growth, excellencies, abuses, beauties, and personages are all portrayed in that graphic style which has placed the author, **Geo. Alf. Townsend**, among the foremost newspaper correspondents of the time. It gives bold, startling, truthful inside views of Washington life and Congressional and Lobbying Jobbery. Books ready for delivery. Address **JAS. BETTS & CO., Hartford, Ct.,** or Chicago, Ill.; **S. M. BETTS & CO., Cincinnati, Ohio.**

HUNTERS' AND TRAPPERS' GUIDE

To use and care of Arms and Ammunition; making and using Traps, Snares, and Nets; Baits and Baiting; Poison; Bird Line; Preserving, Stretching, Dressing, Tanning and Dyeing Skins and Furs; Fishing, etc. Mailed for 20 cents, by **C. S. RILEY, Holland, N. Y.**

Great Fire at Mt. Vernon N. Y., Oct. 8, 1873.

TESTIMONY OF CITIZENS.

BRIDGEPORT PUMP CO.—GENTS: The great fire in this town found us sadly lacking the ordinary means of putting it out, but fortunately for us the undersigned, we or our neighbors had your *American Submerged Pumps*, provided with hose, and by using them we were enabled to throw water upon our buildings, thereby saving our property from being entirely consumed. Had we not been supplied with these *Unequaled Force Pumps* our property, to the amount set against our names, must have been lost, together with whole blocks of buildings, which comprised the entire business portion of the town; as a very heavy northerly wind was blowing at the time. We most sincerely recommend every person having a well in or near their houses to provide themselves with one of these *Miniature Fire Engines* without delay. The pump used to save the following property was a No. 1 in Mr. Burr Davis's livery stable, where it had been in constant use over three years. The heat was so intense that it melted French plate-glass show windows in his undertaker's store, yet he saved his buildings intact. Burr Davis, house, stable, store, and stock, value \$40,000
Joseph S. Wood, editor and prop. *Chronicle* newspaper, " 5,000
John Hendricks, store and dwelling, " 1,500
M. P. Kennedy, store, " 1,300
George P. Henu, store and dwelling, " 10,000

In another locality, directly in range of the fire, George Howard, No. 1 pump with 150 feet of hose, saved George Howard, hardware store and stock, valued \$20,000
also his barn and store-house, " 2,000
Wm. H. Van Arsdale, house and store, " 10,000
Jackson Hart, drug store, " 10,000
John Boes, carpenter's shop, " 6,000

The Glen Falls Insurance Co. also saved on adjoining buildings and stock, by the timely use of this powerful force pump, \$10,000, and we strongly advise every one to supply themselves with one or more on their premises. W. H. BARD, Agent Glen Falls Ins. Co., Mt. Vernon, N. Y.
W. W. FISH, General Agent for Westchester Co., N. Y.

Reputation and Money

CAN BE MADE BY SELLING THE
ENAMELED

AMERICAN SUBMERGED PUMPS.

ALSO

ENAMELED PIPE,

THE PUREST WATER CONDUCT IN THE WORLD.

County and town rights of this Pump for sale by

MUDGE & WOODS,

No. 55 Chambers St., New York.

See March and April Nos. of this Paper.

A. A. RUNDLE & BRO., No. 318 North Centre St., Bloomington, Ill., have the exclusive agency of the State of Illinois for the sale of the *ENAMELED American Submerged Pump*, also county rights for sale.

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Wanted to introduce our celebrated Rubber Goods for ladies and children's wear. They sell rapidly, and give perfect satisfaction. Send for our Illustrated Catalogue.

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W. A. COVERT & CO., Produce Commission Merchants, No. 68 Pearl Street, New York. "Quick sales and prompt returns." Send for our weekly Prices-current and Marking Plate.

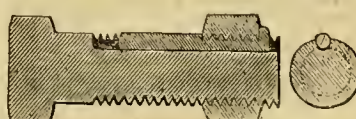
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When you buy a *Reaper, Mower, Thrashing Machine, Carriage, or Wagon*, INSIST upon all the bolts having



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CUMMING
Lock-Nut.

Patented June 16, 1868.



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Licenses granted to Manufacturers of Agricultural Machines, Carriages, Wagons, etc., at low rates. Address

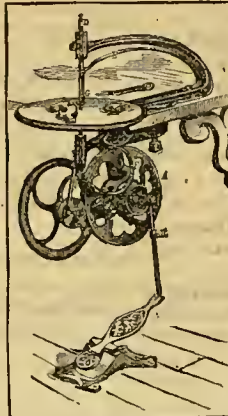
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Patented July 23, 1872.



SIMPLE,
COMPACT,
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Runs easily as a sewing machine.

The BEST of its kind, at ONE HALF the COST of any other make.

FOR
Amateurs,
Jewelers,
Model-Makers,
Boys and Girls.
Will Make Beautiful
Parlor Ornaments.
Will Saw Brass,
Zinc, Copper, Horn,
Bone, and Ivory.
Adapted to the finest work.

No experience required to make beautiful Brackets, Picture Frames, Easels, Book Shelves, Match Boxes, etc., etc., which sell quickly at large profit.

The Machines are handsomely finished, very carefully fitted, and WORK TRUE. Will cut three-quarter-inch wood readily. Swing 15 inches between saw and frame, and weigh complete 25 lbs.

No. 2 Machine, complete, at factory.....\$10

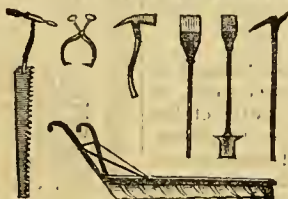
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MANUFACTURERS OF

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Quincy Hall, Boston, and

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The Pulsometer or Magic Pump.



The simplest, most durable, and effective steam pump now in use. Adapted to all situations, and performs all the functions of a steam pump without its consequent wear and care. No machinery about it. Nothing to wear out. Will pump gritty or muddy water without wear or injury to its parts. It can not get out of order.

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Cure of Dyspepsia without Drugs.

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In twelve colors. The picture represents an artist in the field, with paint, easel, and palette, painting a landscape. He has for a moment left his brush to chat with a pretty girl at the door of the cottage near by. Meanwhile a cow has discovered his picture and is busily engaged in licking of the paint, while her calf has poked its nose into the artist's tools and tumbled them all in a heap on the ground. A little back a noble bull is seen marching to the scene, attracted no doubt by a huge white umbrella, spread and fastened to a stake drove into the ground to keep the sun from the picture-maker while he is at his work. It should be in every farmer's library.

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Or, in case our readers wish a Book Premium instead of a Picture, we will give them, when \$2.00 are sent, THE HERALD OF HEALTH and a copy of

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ORANGE JUDG COMPANY, Publishers, 245 Broadway, N. Y.

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who wishes to **do good and make money**, can do both by going to work as here invited by the publishers of these two most valuable journals, *American Agriculturist* and *HEARTH AND HOME*. You need only to show specimens of the papers, promise the beautiful Chromos, which are now ready for delivery, according to the publishers' offer, and forward your subscriptions.

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raising a club much larger than you had at first calculated upon; and even should you secure fewer subscribers than at first hoped for, the Premiums are so many and so various that you could not fail to be suited with some good thing on the list.

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Explanatory Notes.

N. B.

Read and carefully

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N. B.—In all Premium Clubs for either paper, TWO copies of *American Agriculturist* (English or German) at \$1.50 each, and ONE copy of *Hearth and Home* at \$3.00, will count exactly the same. So also two copies of *American Agriculturist* at \$1 each, and one copy of *Hearth and Home* at \$2.50, will count exactly the same. In this way Premium Clubs can be made up from the 2d and 4th columns, or from the 3d and 5th, or wholly from the 6th column.

Table of Premiums and Terms For American Agriculturist, and for Hearth and Home, for the Year 1874. Open to all—No Competition.		(1) Price of Premiums.	(2) Number of Subscribers required at or at \$1.50	(3) only. Number of Subscribers required at or at \$3.00	(4) Hearth and Home only. Number of Subscribers required at or at \$5.00	(5) \$2.50	(6) Both Papers together Number of Subscribers required at or at \$4.00
No.	Names of Premium Articles.						
1	Moore's Floral Set (Moore Man'g Co)	\$1.00	3	2	2	2	2
2	Gold Pen, Sil. Case (George F. Hawkes)	\$3.25	8	30	5	15	6
3	Gold Pen and Silver Case (do. do.)	\$3.00	12	37	7	19	8
4	Gold Pen, Handle gold-tipped (do. do.)	\$6.00	15	45	8	28	9
5	Ladies' Gold Pen and Rubber Case (do. do.)	\$6.00	15	45	8	28	9
6	Paragon Pat. Revolving Pencil (do.)	\$1.50	4	2	2	3	3
7	Paragon Pat. Revolving Pencil (do.)	\$3.00	8	8	5	15	6
8	Paragon's Indelible Ink (do.)	.75	9	2	2	3	3
9	Cake Basket (Lucius Hart Man'g Co.)	\$12.00	19	65	10	33	11
10	Revolving Butter Cooler (do. do.)	\$8.00	16	52	8	28	9
11	Card Receiver (do. do.)	\$7.00	16	49	8	28	9
12	One Dozen Teaspoons (do. do.)	\$6.00	15	45	8	28	9
13	One Dozen Tablespoons (do. do.)	\$12.00	19	65	10	33	11
14	One Dozen Table Forks (do. do.)	\$12.00	19	65	10	33	11
15	Child's Cup (do. do.)	\$2.75	7	27	4	14	4
16	Child's Knife, Fork & Spoon (do. do.)	\$5.00	12	37	7	19	8
17	Child's Carriage (C. W. F. Dare)	\$20.00	80	102	15	61	17
18	Child's Self-operating Swing (do. do.)	\$4.00	9	32	6	16	7
19	Doll's Cottage Chamber Set (do. do.)	\$5.00	12	37	7	19	8
20	Grandall's Building Blocks	\$3.00	5	20	3	10	4
21	Grandall's Masquerade Blocks	\$1.00	9	2	2	2	2
22	Knives and Forks (Woods Cutlery Co.)	\$12.00	19	65	10	33	11
23	Knives and Forks (Patterson Bros.)	\$15.00	22	75	11	38	13
24	Knives and Forks (do. do.)	\$20.00	30	102	15	61	17
25	Carver and Fork (do. do.)	\$5.00	14	40	8	20	8
26	French Cook's Knife, Fork, and Steel	\$4.25	10	34	6	17	7
27	Pocket Knife (Meriden Cutlery Co.)	\$1.50	4	8	2	3	3
28	Pocket Knife (do. do.)	\$2.00	6	22	4	14	4
29	Pocket Knife (do. do.)	\$2.75	7	27	6	14	6
30	Ladies' Pocket Knife (do. do.)	\$2.00	6	22	4	14	4
31	Multum in Parvo Knife (do. do.)	\$3.00	8	30	5	15	6
32	Garden Seeds & Flower Bulbs (selection)	\$2.00	6	22	4	14	4
33	Extra Early Vermont Potato (2-lb parcel)	\$1.00	3	2	2	2	2
34	Sewing Machine (Grover & Baker)	\$50.00	66	263	34	151	39
35	Sewing Machine (Florence)	\$55.00	76	304	37	145	43
36	Sewing Machine (Willcox & Gibbs)	\$56.00	62	246	31	123	34
37	Sewing Machine (Secor)	\$62.00	70	270	35	135	42
38	Beckwith #12 Sewing Machine	\$12.00	16	52	8	26	9
39	Beckwith Portable Family Sew'g Mach.	\$20.00	20	70	15	30	12
40	Washing Machine (Dodge)	\$14.00	21	70	15	30	12
41	Clothes Wringer (Best Universal)	\$8.00	16	52	8	26	9
42	Melroe's 4-cord (G. A. Prince & Co.)	\$56.00	78	245	39	148	43
43	Melroe's 4-cord (do. do.)	\$112.00	159	400	69	200	76
44	Piano, Splendid Tact (Steinway & Sons)	\$600.00	625	1650	313	815	344
45	Silver Watch (American Watch Co.)	\$40.00	50	165	20	85	32
46	Ladies' Fine Gold Watch (do. do.)	\$100.00	110	350	55	175	61
47	Breech-loading Pocket Rifle	\$16.00	24	80	12	40	16
48	Double-barrel Gun (Cooper, Harris & H.)	\$30.00	36	120	25	75	26
49	Remington's Breech-loading Rifle	\$36.00	42	144	30	84	32
50	Charles Pratt's Single-barrel Shot-gun	\$36.00	42	144	30	84	32
51	Charles Pratt's Astral Oil (can, 5 Gal.)	\$3.00	7	27	5	14	6
52	Hand Cultivator & Weeder (Comstock)	\$9.00	17	54	9	29	10
53	Family Scales (Fairbanks & Co.)	\$11.00	21	70	11	35	13
54	Worcester's Great Illustrated Dictionary	\$1.00	18	50	11	35	13
55	Any back Volume <i>Agriculturist</i>	\$1.00	19	55	10	33	11
56	Any Two Back Volumes do.	\$2.00	38	110	20	66	22
57	Any Three do. do. do.	\$3.00	57	165	27	99	33
58	Any Four do. do. do.	\$4.00	76	220	37	132	44
59	Any Five do. do. do.	\$5.00	95	275	46	165	55
60	Any Six do. do. do.	\$6.00	114	330	55	198	66
61	Any Seven do. do. do.	\$7.00	133	385	64	231	77
62	Any Eight do. do. do.	\$8.00	152	440	73	264	88
63	Any Nine do. do. do.	\$9.00	171	495	82	297	99
64	(Each add'l Vol. at same rate.)						
65	Seventeen Vols. XVII to XXXII.	\$29.75	40	157	20	64	24
66	Any Back Vol. <i>Agriculturist</i>	\$2.50	30	100	12	48	16
67	Any Two Back Volumes do.	\$5.00	60	200	24	96	32
68	Any Three do. do. do.	\$7.50	90	300	36	144	48
69	Any Four do. do. do.	\$10.00	120	400	48	192	64
70	Any Five do. do. do.	\$12.50	150	500	60	240	80
71	Any Six do. do. do.	\$15.00	180	600	72	288	96
72	Any Seven do. do. do.	\$17.50	210	700	84	336	112
73	Any Eight do. do. do.	\$20.00	240	800	96	384	128
74	Any Nine do. do. do.	\$22.50	270	900	108	432	144
75	(Each add'l Volume at same rate.)						
76	Seventeen Vols. XVI to XXXII.	\$29.75	40	137	20	64	24
77	Any Back Vol. <i>Agriculturist</i>	\$2.50	30	100	12	48	16
78	Any Two Back Volumes do.	\$5.00	60	200	24	96	32
79	Any Three do. do. do.	\$7.50	90	300	36	144	48
80	Any Four do. do. do.	\$10.00	120	400	48	192	64
81	Any Five do. do. do.	\$12.50	150	500	60	240	80
82	Any Six do. do. do.	\$15.00	180	600	72	288	96
83	Any Seven do. do. do.	\$17.50	210	700	84	336	112
84	Any Eight do. do. do.	\$20.00	240	800	96	384	128
85	Any Nine do. do. do.	\$22.50	270	900	108	432	144
86	(Each add'l Volume at same rate.)						
87	1810 Library (Your Choice)	\$10.00	19	58	9	29	10
88	1815 Library do.	\$15.00	24	85	12	43	14
89	1820 Library do.	\$20.00	31	106	16	53	18
90	1825 Library do.	\$25.00	38	125	19	63	21
91	1830 Library do.	\$30.00	44	144	22	72	25
92	1835 Library do.	\$35.00	50	162	25	81	28
93	1840 Library do.	\$40.00	56	177	28	89	31
94	1845 Library do.	\$45.00	62	192	31	96	34
95	1850 Library do.	\$50.00	68	207	34	104	36
96	1855 Library do.	\$55.00	74	222	40	119	42
97	1860 Library do.	\$60.00	80	237	43	126	45
98	1865 Library do.	\$65.00	86	252	46	133	48
99	1870 Library do.	\$70.00	92	267	49	140	51
100	1875 Library do.	\$75.00	98	282	52	147	54
101	1880 Library do.	\$80.00	104	297	55	154	57
102	1885 Library do.	\$85.00	110	312	58	161	60
103	1890 Library do.	\$90.00	116	327	61	168	63
104	1895 Library do.	\$95.00	122	342	64	175	66
105	1900 Library do.	\$100.00	128	357	67	182	69
106	1905 Library do.	\$105.00	134	372	70	189	72
107	1910 Library do.	\$110.00	140	387	73	196	75
108	1915 Library do.	\$115.00	146	402	76	203	78
109	1920 Library do.	\$120.00	152	417	79	210	81
110	1925 Library do.	\$125.00	158	432	82	217	84
111	1930 Library do.	\$130.00	164	447	85	224	87
112	1935 Library do.	\$135.00	170	462	88	231	90
113	1940 Library do.	\$140.00	176	477	91	238	93
114	1945 Library do.	\$145.00	182	492	94	245	96
115	1950 Library do.	\$150.00	188	507	97	252	99
116	1955 Library do.	\$155.00	194	522	100	259	102
117	1960 Library do.	\$160.00	200	537	103	266	105
118	1965 Library do.	\$165.00	206	552	106	273	108
119	1970 Library do.	\$170.00	212	567	109	280	111
120	1975 Library do.	\$175.00	218	582	112	287	114
121	1980 Library do.	\$180.00	224	597	115	294	117
122	1985 Library do.	\$185.00	230	612	118	301	120
123	1990 Library do.	\$190.00	236	627	121	308	123
124	1995 Library do.	\$195.00	242	642	124	315	126
125	2000 Library do.	\$200.00	248	657	127	322	129
126	2005 Library do.	\$205.00	254	672	130	329	132
127	2010 Library do.	\$210.00	260	687	133	336	135
128	2015 Library do.	\$215.00	266	702	136	343	138
129	2020 Library do.	\$220.00	272	717	139	350	141
130	2025 Library do.	\$225.00	278	732	142	357	144
131	2030 Library do.	\$230.00	284	747	145	364	147
132	2035 Library do.	\$235.00	290	762	148	371	150
133	2040 Library do.	\$240.00	296	777	151	378	153
134	2045 Library do.	\$245.00	302	792	154	385	156
135	2050 Library do.	\$250.00	308	807	157	392	159
136	2055 Library do.	\$255.00	314	822	160	399	162
137	2060 Library do.	\$260.00	320	837	163	406	165
138	2065 Library do.	\$265.00	326	852	166	413	168
139	2070 Library do.	\$270.00	332	867	169	420	171
140	2075 Library do.	\$275.00	338	882	172	427	174
141	2080 Library do.	\$280.00	344	897	175	434	177
142	2085 Library do.	\$285.00	350	912	178	441	180
143	2090 Library do.	\$290.00	356	927	181	448	183
144	2095 Library do.	\$295.00	362	942	184	455	186
145	2100 Library do.	\$300.00	368	957	187	462	189
146	2105 Library do.	\$305.00	374	972	190	469	192
147	2110 Library do.	\$310.00	380	987	193	476	195
148	2115 Library do.	\$315.00	386	1002	196	483	198
149	2120 Library do.	\$320.00	392	1017	199	490	201
150	2125 Library do.	\$325.00	398	1032	202	497	204
151	2130 Library do.	\$330.00	404	1047	205	504	207
152	2135 Library do.	\$335.00	410	1062	208	511	210
153	2140 Library do.	\$340.00	416	1077	211	518	213
154	2145 Library do.	\$345.00	422	1092	214	525	216
155	2150 Library do.	\$350.00	428	1107	217	532	219
156	2155 Library do.	\$355.00	434	1122	220	539	222
157	2160 Library do.	\$360.00	440	1137	223	546	225
158	2165 Library do.	\$365.00	446	1152	226	553	228
159	2170 Library do.	\$370.00	452	1167	229	560	231
160	2175 Library do.	\$375.00	458	1182	232	567	234
161	2180 Library do.	\$380.00	464	1197	235	574	237
162	2185 Library do.	\$385.00	470	1212	238	581	240
163	2190 Library do.	\$390.00	476	1227	241	588	243
164	2195 Library do.	\$395.00	482	1242	244	595	246
165	2200 Library do.	\$400.00	488	1257	247	602	249
166	2205 Library do.	\$405.00	494	1272	250	609	252
167	2210 Library do.	\$410.00	500	1287	253	616	255
168	2215 Library do.	\$415.00	506	1302	256	623	258
169	2220 Library do.	\$420.00	512	1317	259	630	261
170	2225 Library do.	\$425.00	518	1332	262	637	264
171	2230 Library do.	\$430.00	524	1347	265	644	

Descriptions of Premiums.

(For number of Subscribers required, see Table, page 393.)

No. 1. — Moore's Floral Set.—This is a beautiful Premium—a complete set of Ladies' or Children's Garden Tools for the cultivation of flowers, consisting of a Floral Hoe, Spade, Fork, and Rake. They are made of the best steel and iron, with finely polished hard-wood handles, light, durable, and highly finished, and each set inclosed in a box. They will be found very convenient in the garden and greenhouse, and are pleasing toys for the little folks. Made by the Moore Manufacturing Company, Kensington, Ct.

Nos. 2, 3, 4.—Gold Pens: with ever-pointed Pencils, in extension, coin-silver cases.—Premium No. 2 contains the best No. 4 Gold Pen; and No. 3 the best No. 6 Gold Pen, which is the same style, but larger. No. 4 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather case by mail, post-paid. These pens are made by Geo. F. Hawkes, No. 66 Nassau St., and have obtained an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 5.—Ladies' Fine Gold Pen, in Rubber Case, Gold Mounted, with Screw Extension, and Gold Ever-pointed Pencil. A beautiful present for a lady teacher or friend. Same maker as No. 2.

Nos. 6, 7.—Paragon Patent Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the head. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at \$1.50 each, and one of heavier and firmer plate, at \$3.00. Same maker as No. 2.

No. 8.—Payson's Indelible Ink, and Briggs's Marking-Pen Combination.—Payson's Indelible Ink is too well known to need further commendation. It is almost indispensable in the family. Briggs's Marking-Pen has been before the public for fifteen years, and is justly celebrated for all kinds of marking, and particularly for writing upon coarse fabrics. The Pen and Ink are put up in a neat case, being thus portable, always ready for use, and protected from loss or injury by evaporation or breakage.

No. 9.—Cake Basket.—A new pattern, oval-shaped, nicely chased—a very taking, useful, and beautiful table ornament. This, with other articles that follow, is made by the Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City, and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully sustaining his reputation. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-looking plated ware for less than half the money.

No. 10.—Revolving Butter-Cooler.—This is a really good and useful article. It is so arranged that a very little ice in the holder under the plate will keep butter cool and fresh for a long time on the table, even in the hottest weather. The cover revolves underneath the plate for use, and over for protection. The whole is in four pieces, which can all be taken apart for washing. From same house as No. 9.

No. 11.—Card Receiver.—This is a beautiful ornament, as well as a useful article. It is finely chased and gilt-lined, and, like the three preceding, is from the Lucius Hart Manufacturing Co.

No. 12.—One Dozen Teaspoons.—No. 13.—One Dozen Table-Spoons.—These are "figured tips," Olive-leaf Pattern, all of the same metal, plating, etc., and from the same makers as No. 9. They are far cheaper than anything we have found at half the price, and are well worth working for.

No. 14.—One Dozen Table-Forks.—The same description and remarks apply to these as to No. 13. We select as premiums only such articles as we can warrant in quality and price. All these articles come from the Lucius Hart Manufacturing Co.

No. 15.—Child's Cup.—A beautiful gift for the little one-year-old. It is made by the Lucius Hart Manufacturing Co. Triple-plated on the outside and gilded on the inside. It never breaks, and will last for many years—indeed, be a life-keepsake.

No. 16.—Child's Knife, Fork, and

Spoon.—This also is a beautiful gift for a child. The articles are triple-plated, finely figured with ivy-leaf pattern, and put up in a handsome silk-lined morocco case. From the same house as No. 15.

No. 17.—Child's Carriage, or Perambulator.—An elegant carriage, handsomely finished, upholstered with reps, has full plate turned joints, handle tips, side lights, dash rail, panel body, and carpet on the bottom. These carriages are from the well-known manufacturer C. W. F. Dare, 47 Cortlandt St., New York.

No. 18.—Child's Patent Propeller or Self-Operating Swing.—A pleasing thing for a little boy or girl. The seat of the swing is upholstered with enameled cloth, showily painted, and hooks and all complete accompany it. When it is hung up, the hooks overhead, to which the lever ropes are attached, must be set about one foot in front of the hooks to which the main ropes are attached. A child is delighted with being able to swing himself. From C. W. F. Dare, 47 Cortlandt St., New York.

No. 19.—Doll's Cottage Chamber Set.—A most attractive gift for a little girl. Eight pieces of furniture prettily painted: Bedstead (size 11½ x 13 inches), bureau, table, commode, towel-rack, two chairs, one rocking-chair. From C. W. F. Dare, 47 Cortlandt St., New York.

No. 20.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequalled. The Blocks are put up in neat boxes, accompanied by a large illustrated sheet giving various designs of buildings, etc. This is one of the most successful toys ever invented.

No. 21.—Crandall's Masquerade Blocks.—These are put up in boxes, the blocks in each of which will make, by various combinations, 500 different pictures in brilliant colors. They are not injured by washing, and afford endless amusement for children. They are beautiful gifts for the little ones.

No. 22.—Knives and Forks.—These have ebony and metal handles, manufactured by a patent process which unites them so firmly to the blades that they never work loose, and are rendered hot water-proof. The knife blades are silver-plated. Made in the best style by the Woods Cutlery Co., 55 Chambers St., New York. For this Premium we will give either the Table, Medium, or Dessert size, as may be specified by the recipient; six knives and six forks, or twelve knives without forks.

Nos. 23, 24, 25.—American Table Cutlery.—We are glad to be able to offer really good articles of American manufacture, such as are competing successfully with the best foreign make. Messrs. Patterson Bros., 27 Park Row, who supply us with these articles, are also importers of English goods. They recommend these Knives, manufactured by the Meriden Cutlery Co., as equal to any Cutlery in the market, and their recommendation is a guarantee wherever they are known. We offer two kinds of Knives, and three sizes of each kind. No. 23 have Rubber Handles, which are actually boiling-water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the best steel, and warranted. Dessert size, with Forks, sold at \$15. For 21 subscribers at \$1.50, or 50 at \$1, we will give either the medium size or the table size, sold at \$16.00. No. 24 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at \$20.00. For 33 subscribers, at \$1.50, or 110 at \$1, we will send the medium size, sold at \$22.00. For 35 at \$1.50, or 116 at \$1, we will send the Table size, sold at \$23.00. The Forks, which accompany these Premiums, Nos. 23 and 24, are made of genuine Albata, and warranted double-plated with coin-silver. These Forks are furnished to us by Messrs. Patterson Bros. The Carving-Knife and Fork are made by The Meriden Cutlery Co., with the best Ivory, balanced Handles.

No. 26.—French Cook's Knife, Fork, and Steel.—This is a long (10 in.) thin Knife, with Pat. Rubber Handle, made of the best steel, and for use rather than ornament; and it is really pleasing to see how easily it slips through a joint of beef. The fork and steel are made to match. It would save many very faces, and perhaps hard words, were it in general use. Made by the Meriden Cutlery Co.

Nos. 27, 28, 29, 30.—Pocket Knives.—HERE'S FOR THE BOYS AND GIRLS!—These Premiums

are among the most pleasing and useful that we have ever offered. Every boy, and girl too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are furnished by the Meriden Cutlery Co., 49 Chambers St., New York, whose work is equal to any done in this country or Europe. No. 27 is a neat, substantial Knife, with three blades and back-horn handle. No. 28 is a still finer article, with four blades and pearl handle. No. 29 is an elegant Knife, with five blades and shell handle. No. 30 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 31.—Maltum in Parvo Pocket Knife.—Boys, Read this! This is a most attractive as well as useful Premium, from the Meriden Cutlery Co., 49 Chambers St., New York. It comprises, in one knife-handle, a large and a small blade, a screw-driver, a saw, a strong hook, a nut-cracker, a brad-awl, a gimlet, a corkscrew, a pointer, a slim punch, tweezers, and, in addition to this, it can be used for various other purposes which will at once suggest themselves to any smart boy or man. It is a pocketful of tools weighing but two ounces. The knives will be sent anywhere in our country, post-paid.

No. 32.—Very Choice Garden Seeds and Flower Bulbs.—We have taken special pains to have prepared by Messrs. B. K. Bliss & Sons, 23 Park Place and 20 Murray Street, whose seed establishment is well known as one of the best in the country, a list of seeds and bulbs of the very choicest kinds, and the most useful varieties. Though some are rare (and costly), all have been tested and found excellent. Here is an opportunity to obtain a valuable assortment of seeds, as this premium allows you to select from the list below any that may be desired, to the amount of two dollars. If more is wanted, it of course is only needful to secure two or more of the premiums, and select seeds accordingly. All delivered free: 1 pint New Dwarf Wax Beans, 50c.; 1 pkt. Beet, New Egyptian Blood Turnip, 15c.; ½ oz. do. Perpetual Spinach, 25c.; 2 oz. do., Lane's Improved Imperial Sugar, 25c.; 1 Pkt. Cabbage, Early Wyman, 25c.; ½ oz. do., Marblehead Mammoth, 50c.; ½ oz. do., Improved American Savoy, 25c.; ¼ oz. do., Improved Brunswick, 25c.; ½ oz. do., Premium Flat Dutch, 20c.; ½ oz. do., Improved Red Dutch, for pickling, 25c.; ¼ lb. Carrot, Eliss's Improved Long Orange, 50c.; 1 pkt. Cauliflower, Early White Erfurt, 25c.; 1 pkt. do., Early Paris, 25c.; ½ oz. Celery, Boston Market, 25c.; 1 oz. Cucumber, finest for pickling, 25c.; 1 pkt. Egg-Plant, New Black Pekin, 25c.; 1 pkt. Kale, New Garnishing, 25c.; ½ oz. Lettuce, Early Simpson, 25c.; 1 pkt. Muesmelon, Hackensack, 15c.; 1 pkt. do., Sill's Hybrid, 15c.; 1 pkt. Watermelon, Japanese Cream-fleshed, 25c.; 1 pkt. Onion, New Queen, 25c.; 1 pkt. do., New Giant Rocca, 15c.; ½ pint Peas, Laxton's Alpha, 25c.; 1 pint Peas, McLean's Little Gem 20c.; 2 oz. Squash, True Boston Marrow, 50c.; 2 oz. do., Turban, 50c.; 2 oz. do., Gennine Hubbard, 50c.; ½ oz. do., Marblehead, 25c.; 2 oz. Tobacco, Conn. Seed Leaf, 50c.; ¼ oz. Tomato, Arlington, 50c.; 1 pkt. do., Grapeshot 15c.; 1 Lilium auratum, or New Gold-banded Lily, from Japan, 50c.; 1 Lilium lancifolium rubrum, Japan Lily, red, 40c.; 1 Lilium lancifolium album, Japan Lily, white, 40c.; 1 doz. Gladioluses, fine mixed varieties, \$1.50; 1 doz. Mexican Tiger Flowers, \$1.25; 1 doz. Tuberoses, Double Italian, best, \$1.50; 1 doz. Hyacinths, double and single, in three colors, red, blue, and white (for fall planting), \$1.50; 4 doz. Tulips, double and single, early and late (for fall planting), \$2.00; 100 Crocuses, fine varieties (for fall), \$1.00.

No. 33.—Extra Early Vermont Potato.—This remarkable potato is a seedling raised in 1867 from a seed-ball of the well-known Jackson White. It is supposed to have been fertilized from the Garnet Chili, as it resembles many seedlings of that variety. For five years the "Vermont" potatoes have been grown side by side with the Early Rose, both under the same treatment, and have proved seven to ten days earlier than that favorite sort; they are more productive, fully equal to the Early Rose if not superior in quality, flesh very white, dry, and floury, excellent keepers, and in every way a most promising variety. We have made arrangements with Messrs. B. K. Bliss & Sons, 23 Park Place, New York, to supply us with the genuine article, to go by mail, post-paid, to any part of the country. They should go out before freezing weather, but when too late for this we will keep them until warm enough to mail them in the spring. This Premium can only remain open while the supply lasts.

Nos. 34, 35, 36, 37.—Sewing Machines.—A good Sewing Machine lightens the labor and promotes the health and happiness of those at home. We offer a choice of three of the best of the leading machines, all of which have been thoroughly tested in our own families, and give entire satisfaction. While all are valuable, each has some excellence peculiar to itself. The Grover & Baker Co. make two kinds of machines—the "Lock Stitch" and the "Elastic Stitch." The elastic stitch is remarkable for its elasticity, while it is at the same time very firm and durable. The structure

of the seam is such that, though it be cut or broken at intervals of only a few stitches, it will neither open, run, nor ravel. It sews directly from two spools, without re-winding. The "Lock Stitch" makes the stitch alike on both sides, and is easily operated. Either kind will be furnished. The **Florence Machine** makes different stitches, each being alike on both sides of the fabric. One of its special advantages is that it has the *reversible feed motion*, which enables the operator, by simply turning a thumb-screw, to have the work run either to the right or left, to stay any part of the seam, or fasten the ends of seams without turning the fabric. The **Willcox & Gibbs Machine** excels in the exceeding *simplicity of its construction*. Very little instruction and ingenuity are required to understand the few parts of which it is composed, and their use; and there is no excuse for getting it out of order until the parts are fairly worn out. One of its strongest recommendations is the *ease with which it is worked*, taxing the strength of the operator less than other machines. The new table and pedals are great improvements. The **Secor machine** is claimed to comprise the *fewest number of pieces* of any lock-stitch machine. Its tension is very simple, and no change is required in passing over seams. It will sew from *tissue paper to leather*. The tension-plates are close to the needle, and if the thread is cut from the spool, will work until the thread is exhausted. The needle is *self-setting*. All the works being above the table, they are easily oiled and cleaned.—All these machines have constantly increasing sales, showing the public estimate of their value. Either of them will prove a great treasure in any household—worth more than \$500. The \$500, at 7 per cent interest, would yield (less taxes) about \$32. Most families require at least four months of steady hand-sewing a year, costing, if all hired, not less than \$34 a month, board included, or \$96 a year. With a Sewing Machine, a woman can sew more in one month than in four months by hand. Here is a clear saving of \$72. But far above this—the everlasting "Stitch, stitch, stitch," the bending over the work, and the loss of sleep, have brought tens of thousands to early graves. We say to every man, Get your wife a Sewing Machine, even if you have to sell a favorite horse or an acre or two of land—get the Sewing Machine any way. If you can get one through our premium-list—well; but get the machine. —No charge for boxing the machines. They go safely as freight. Send for circulars, giving full instructions, to **Grover & Baker Mfg Co.,** 736 Broadway, N. Y. **Florence Sewing Mfg Co.,** 39 Union Square. **Willcox & Gibbs Mfg Co.,** 658 Broadway, N. Y. **Secor Sewing Machine Co.,** 697 Broadway, N. Y.

No. 38.—Beckwith \$12 Sewing-Machine.—While we advise buying a \$35 to \$45 Sewing-Machine, we have looked for one which, while brought by its low price within the reach of multitudes who can not afford the valuable higher cost machines, should be at the same time worthy of commendation. This we have found in the Beckwith Machine. It is well and strongly made, is simple, its use being quickly learned, is applicable to almost all kinds of family sewing, and has already been tested so thoroughly that hundreds of testimonials, from all quarters, have been given by those who are delighted with its work. Each machine is put in a neat, compact box, with *hemmer and guide, oil-can with oil, thread, different-sized needles, etc.*, with full printed directions for using. We offer these Machines on our Premium List. We will sell them to any who may wish to buy, for \$12 each, delivering to any express office in this city.

No. 39.—Beckwith Portable Family Sewing Machine.—While we offer the Beckwith \$12 Machine (Premium No. 38) we also offer the new Portable Machine, price \$20, which comprises all the excellencies of the former, with many valuable improvements. Its size and power are increased, and its capacity thus very much enlarged, without impairing its portability. There have been added cam and eccentric movement, a balance-wheel, and also an oscillating needle-clamp, by which the length of stitch can with the greatest ease be changed to the finest shade of variation without touching the needle. We will sell these machines (packed in a neat, portable case, with handle to carry it easily) to any one who may wish to buy, for \$20 each, delivering to any express office in this city.

No. 40.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" use it and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 41.—Universal Clothes Wringer.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in every family. The wringing of clothes by hand is hard upon the hands, arms, and chest, and the twisting stretches and breaks the fibers with lever power. With the Wringing Ma-

chine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the articles. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co., Middlefield, Ct. R. C. Browning, 32 Cortlandt St., N. Y.**

Nos. 42, 43.—Melodeons.—These are excellent and desirable instruments, for the *Home Circle*, for small Churches, for Sunday-schools, for Day Schools, Academies, etc. Instrumental and Vocal Music in a school has a beneficial influence upon the pupils. We have seen the whole tone and character of a school improved by introducing a Melodeon.—Set the pupils to work and they will raise a club of subscribers for this premium. We offer the Melodeons made by Messrs. **Geo. A. Prince & Co., Buffalo, N. Y.**, for we know them to be good. A large one in our own Sunday-school room has been there fourteen years, and is to-day just as good as when first purchased, though used from time to time by a large number of persons.—Several clergymen have obtained this premium for themselves, their Churches, or Sunday-school rooms. The clubs of subscribers were quickly raised among the members of their parishes.—Many others can get a Melodeon for their home use. Send a postage-stamp to the makers and get their illustrated descriptive circular. These Melodeons will be shipped direct from the manufactory at Buffalo. They can go safely as freight or by express. If an Organ should be wanted instead of a Melodeon, we can supply it for an increased number of subscribers in proportion to the value.

No. 44.—Steinway Piano.—SEVEN OCTAVE ROSEWOOD CASE, SOLID ROSEWOOD DESK, LARGE FRONT, ROUNDED CORNERS; OVERSTRUNG BASE, FULL IRON FRAME, PATENT AGRAFFE TREBLE, CARVED LEGS, AND CARVED LYRE.—This is one of the most elegant Premiums ever offered; regular and only price \$650. That this magnificent instrument comes from the celebrated establishment of **Messrs. Steinway & Sons, Nos. 109 & 111 East 14th St.,** is enough to say; but it is due to these enterprising manufacturers to state that while their pianos have repeatedly received the First Premiums, by the award of the most competent judges the world can produce, at the Universal Exposition, in Paris they received the First Grand Gold Medal for American Pianos in all three styles exhibited, viz.: Grand, Square, and Upright. The following official certificate was signed by the President and the five members of the International Jury: "Paris, July 20th, 1867. I certify that the First Gold Medal for American Pianos has been unanimously awarded to Messrs. Steinway by the Jury of the International Exhibition. First on the List in Class X." The Society of Fine Arts in Paris unanimously awarded Steinway & Sons their only annual Testimonial Medal for 1867. The President of the Musical Department of that Society reports: "The pianos of Messrs. Steinway appear to me, as well as to all the artists who have tried them, superior to all that have been made to this day in the entire world." The best judges in America say the same. We also speak from personal knowledge, as each of our partners has one at home and desires no better. This splendid premium may be secured by many persons. Only 625 subscribers are required to do it. Several have obtained this premium. It will pay for even a year's labor. Classes of young ladies at school might unite in canvassing, and obtain a present for a Teacher or a Piano for their school-room. We shall be glad to give this premium to a large number. Send to **Messrs. Steinway & Sons, New York City,** for a free circular describing it.

No. 45.—A Good Watch.—The Watches made by the **American Watch Co., Waltham, Mass.,** have peculiarities of excellence which place them above all foreign rivalry. The substitution of machinery for hand labor has been followed not only by greater simplicity, but by a precision in detail, and accuracy and uniformity in their time-keeping qualities, which by the old method of manufacture are unattainable. A smoothness and certainty of movement are secured which proceed from the perfect adaptation of every piece to its place. The extent of the Waltham establishment, the combination of skilled labor with machinery perfect and ample, enable them to offer watches at lower rates than any other manufacturers. Their annual manufacture is said to be double that of all other makers in this country combined, and much larger than the entire manufacture of England. The mechanical improvements and valuable inventions of the last fifteen years, whether home or foreign in their origin, have been brought to their aid, and the presence of nearly 600,000 Waltham Watches in the pockets of the people is the best proof of the public approval. We offer a Silver watch, jeweled, with chronometer balance, warranted by this Company as made of the best materials in the best manner, and in pure coin-silver "hunting" case; weight 3 oz. This watch we offer as one of our Premiums, with the fullest confidence. Upon the movement of each of these watches will be engraved, "AMERICAN AGRICULTURIST. MADE BY THE AMERICAN WATCH CO., WALTHAM, MASS."

No. 46.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 45 above) includes these beautiful gold watches. They are full-jeweled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time-keeper. Upon the movement of each Premium Watch will be engraved "AM. AGRICULTURIST. MADE BY THE AM. WATCH CO., WALTHAM, MASS."

No. 47.—Breech-loading Pocket Rifle.—This remarkable little fire-arm weighs only eleven ounces, yet shoots with great accuracy and power from 30 to 100 yards, or more, and can be loaded and fired five times a minute. It can be carried in a side pocket, and is accompanied by an extension breech, so that it may be used either as a pistol or rifle. It is put up in a neat mahogany case, with 250 rounds of ammunition. The manufacturers are **Messrs. J. Stevens & Co., Chicopee Falls, Mass.,** and the rifles are sold at retail by **Messrs. Cooper, Harris & Hodgkins, No. 177 Broadway.** Without the mahogany case, we will give the weapon, all complete, with 100 cartridges, packed in a pasteboard box, on receipt of 13 subscribers, at \$1.50 each.

No. 48.—Double-Barrel Gun; OR FOWLING PIECE.—These guns are the genuine London "Twist" barrel, Patent Breech, Bar Lock, ebony ramrod, and in all respects desirable. Their caliber and length of barrel vary, and may be ordered to suit the kind of shooting to be done. They are furnished for this Premium by **Messrs. Cooper, Harris & Hodgkins, 177 Broadway,** well known as one of the most reliable and best houses in their line of business, and they highly recommend this particular gun, and guarantee it in every respect. It is from one of the oldest and most favorably known English manufacturers. The price is not put on in fancy carving and plating for show, but in the gun itself. This Premium includes Gun, Powder-Flask, Shot-Pouch, and Wad-Cutter.

No. 49.—Remington's Sporting Breech-Loading Rifle.—The Rifle offered as this Premium has a 30-inch steel barrel, and can be of any weight from 8 to 12 lbs., and of any caliber from $\frac{2}{100}$ to $\frac{5}{100}$, as may be desired. Ammunition is extra, and at prices varying in accordance with the caliber. These rifles are manufactured by the noted firm of **E. Remington & Sons, Nos. 281 and 283 Broadway, New York,** whose reputation is world-wide, and who stand in the front rank of manufacturers of fire-arms.

No. 50.—Remington's Single-Barrel, Muzzle-loading Shot-Gun, Improved.—This very serviceable, low-priced gun has gained a wide reputation, and we doubt not that many of our boy-readers, who are old enough to handle a gun, will be glad to secure one. It is of good material and fine workmanship, and by the same makers as No. 49.

No. 51.—Chas. Pratt & Co's Astral Oil supplies a great Public Want for a Safe, Reliable Illuminating Oil. It is manufactured by him and packed only in the Guarantee Patent Cans, expressly for FAMILY USE. It has more body, and an equal quantity will burn longer and give more light than other oils. The constant recurrence of explosions, fires, devastation, and death resulting from the use of what is called Kerosene Oil—but really a mixture of Benzine, Naphtha, and other highly inflammable substances, the use or sale of which is an infringement of United States Law—has induced us to place this article on our premium-list as a humanitarian as well as a useful act. The Board of Health of the city of New York have examined scores of samples of Oil obtained from as many different dealers in this city, and nearly all have been found far below the Government standard and entirely unfit for use. This "Astral Oil" is from the House of **Chas. Pratt & Co., 108 Fulton St.** Mr. P., a merchant of high reputation, will keep up the article to its present standard. It has been tested, and fully indorsed by the highest scientific authorities in the land. The Guarantee Cans are made of tin, and sealed so that none of the oil can be removed without breaking the seal, thus securing safety in transportation. The can is inclosed in a strong wooden case, and may be returned for refilling. For 17 subscribers at \$1.50, or 54 at \$1.00, we will send a case containing 12 one-gallon Guarantee Cans of Oil, which may be distributed among a club.

No. 52.—Comstock's Horticultural Implements Combined.—HAND CULTIVATOR AND ONION-WEEDEE, SEED-SOWER AND STRAW-BERRY-RUNNER CUTTER.—These implements have given such satisfaction the four years we have offered them as Premiums that we continue them on our Premium-list, and recommend them as very complete contrivances for hand cultivation. The same frame, wheel, and handles answer for all the combinations. The changes for each kind of work can be made in a few

minutes, and every implement works as well as if made specially for the purpose. With any of them one man can accomplish with ease as much as half a dozen men with common tools, and do better work. The price of the Hand Cultivator and Weeder is \$9.00 (see our Premium in the Table); with Seed-Sower combined \$15.00, which we will give for 22 subscribers at \$1.50 or 75 at \$1. The following are extra attachments for the Cultivator and Weeder, which may be secured by sending us, in addition to the above, the same number of subscriptions required for any other Premium of same cost: Strawberry Cutter, \$3.00; pair of Half-share Teeth, \$1.00; set of Shovel Plows, \$2.00; Mole Plow, \$1.00; a *Verge-Cutter* for cutting and cleaning the turf edges of walks and borders, an exceedingly valuable invention, \$1.50; Benfillo Hoe, for scraping walks and alleys, \$1.50. Manufactured by **Comstock Brothers, East Hartford, Ct.**, who furnish descriptive circulars to all applicants.

No. 53.—Family Scales.—These scales, combining the advantages of counter and platform scales, are peculiarly adapted to household purposes. They weigh from 1½ ounce to 240 lbs. They have a scoop, or pan, for weighing flour, sugar, or other house stores, and a platform for heavier articles, and are just such an apparatus as is needed for in-door or out-door use, occupying less than 2 feet square. These scales are manufactured by the well-known **Fairbanks & Co., No. 252 Broadway, New York**, whose weighing apparatus has long ranked as the standard in all parts of the country. Send to them for circulars, if desired.

No. 54.—The Great Dictionary.—WORCESTER'S LARGE PICTORIAL UNABRIDGED EDITION, containing 1851 three-column pages, with a multitude of illustrative engravings. (The work is a large quarto volume.) Most of the thoroughly educated men of the country consider this as by far the best Dictionary in the English Language. It gives the spelling and pronunciation of every word in the language with full explanations, and as a source of general information stands next to a Cyclopaedia. The Dictionary can be called for at our office, or be sent by express or otherwise to any part of the country. It should be in every family. It is published by **Brewer & Tileston, Boston**.

Nos. 55 to 63.—Volumes of the American Agriculturist (Unbound).—These amount to a large and valuable Library on all matters pertaining to the Farm, Garden, and Household, and contain more varied information on these subjects than can be obtained in books costing three times as much. The price of the volumes is \$1.50 each, at the Office, or \$1.75 if sent by mail, as they must be post-paid.—They are profusely illustrated, the engravings used in them having alone cost at least \$100,000. Those obtaining premiums for less than sixteen volumes can select any volumes desired, from XVI to XXXII inclusive. For ordinary use, the sets of numbers unbound will answer.

Nos. 64 to 73.—Bound Volumes of the Agriculturist.—These are the same as Nos. 50 to 58 above, but are neatly bound in uniform style, and cost as more for binding and postage. Sent post-paid.

No. 74.—Farmer's Boy's Library.—A few dollars' worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to make their heads help their hands. One such book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. Any smart boy can easily secure this Premium, and he will have two sterling works by a well-known, practical farmer. They are Allen's New American Farm Book, and Allen's American Cattle.

No. 75.—Farmer's Boy's Library.—Both the books in No. 74, and also Herbert's Hints to Horsekeepers and Henderson's Gardening for Profit.

No. 76.—Farmer's Boy's Library.—The four books in No. 75, with the addition of Fuller's Strawberry Culture, Gregory on Squashes, Brill's Farm Gardening, and Harris on the Pig.

No. 77.—Farmer's Boy's Library.—The eight books in No. 76, with the addition of Thomas's Farm Implements, Tim Bunker Papers, and Waring's Draining for Profit.

No. 78.—Farmer's Boy's Library.—The eleven books in No. 77, with the addition of Fuller's Grape Cultivator, Breck's New Book of Flowers, and Hunter and Trapper—in all 14 fine volumes.

Nos. 79, 80.—Bound Volumes of Hearth and Home.—These volumes are neatly and uniformly bound in cloth, with title in gilt on back and side. With their beautiful engravings, and abundance of useful and entertaining reading for all the mem-

bers of a family, they will prove valuable additions to any library.

Nos. 81 to 92.—Good Libraries.—In these premiums, we offer a choice of Books for the Farm, Garden, and Household. The person entitled to any one of the premiums 81 to 92 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded, Post or Express paid. Let the farmers of a neighborhood unite their efforts, and through these premiums get an agricultural library for general use. See Table List of Books in advertising columns.

No. 93.—General Book Premium.—Any one sending 25 or more names, may select books from our list to the amount of 13 cents for each subscriber sent at \$1; or 30 cents for each name sent at \$1.50; or 60 cents for each name at \$1.50. This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through, by us. See List as in No. 81.

THE BECKWITH SEWING-MACHINE IMPROVED. PRICE, \$12.

With New Braiding-Foot and other
Valuable Improvements.

We have been offering as a Premium, for a year past, the

Beckwith Sewing-Machine,

which was fully described in the *American Agriculturist* for March and April, 1873. We have already given and sold more than one thousand of these machines, and testimonials of satisfaction have come from every quarter.

We now offer the **Beckwith Sewing-Machine, Improved**, price \$12. A new and very simple braiding-foot has been made, by which a child can sew on braid without the least trouble, following any desired pattern with ease; also a new arm, spiral spring and lever for raising the presser-foot, all of which are now set in a position that leaves the needle free to be threaded. The joint is much enlarged, and the machine is otherwise greatly strengthened and improved. The use of the braider-foot alone will be valued more than the cost of the machine. This, with the other improvements, is considered so important, that the Beckwith Sewing-Machine Company will make no more of the \$10 style.

Read what the People Say.

Hundreds of letters have been received by us and by the Beckwith Sewing Machine Co., extracts from a few of which are given below. Some of them were written with reference to the \$10 Machine, but are appropriate to the Improved Machine, as that comprises all the excellencies of the former, with the additions already noted.

WAYNESVILLE, OHIO, June 10, 1873.

SIRS: I received the sewing-machine in due time. I am perfectly delighted with it. I have used it on all kinds of goods. It gives entire satisfaction.

MRS. EMMA CARDER.

PLYMOUTH, Wis., Jan. 29th, 1873.

DEAR SIR: I have had the Machine nearly a year, I think, and this is the only accident (breaking one needle) that has occurred to it. I have used it a great deal, and like it very much.

Yours respectfully,

MRS. S. C. WILLEY.

LACLEDE, Mo., Jan., 1873.

DEAR SIRS: Please send amount inclosed in No. 1 and 2 needles for Beckwith \$10 Sewing-Machine. The little thing works like a charm.

Truly yours,

S. A. HENLEY.

CHURCHVILLE, Va., Feb. 23d, 1873.

GENTLEMEN: The three Machines came safely to hand, and I have sold two of them to my nearest neighbors, who are much pleased with them.

Yours, etc.,

J. H. HEIZER.

KYLERTOWN, Pa., Feb. 13th, 1873.

GENTLEMEN: The Machine works with perfect satisfaction to all. I am young, and never sewed on a machine until I got the Beckwith, but by closely following directions on the lid of the box, I got along without any trouble.

A. F. HOOVER.

CLINTON HOLLOW, N. Y., Feb. 9th, 1873.

GENTLEMEN: I received the Improved Beckwith Sewing-Machine yesterday. Words will fail to express my admiration of it. I had never seen one—never used any machine much—and had not the slightest trouble in immediately sewing with yours.

Truly yours,

A. F. COOKINHAM.

NEWPORT, October 16th, 1872.

GENTLEMEN: The Machine I bought of you September 21st gives great satisfaction. Wife says she would not give it for a \$100 machine, it is so nice and handy.

Respectfully,

CHARLES ALMY.

We have contracted with the Beck with Sewing Machine Company for a large number of them to supply our own friends, and as **Premiums**. Each machine is put in a neat, compact box, with *hemmer and guide, oil-can with oil, thread, different-sized needles, etc.*, with full Printed Directions for using, and delivered to any express office in this city, without extra charge above the \$12. As we buy the machines at wholesale price, we have decided to give our readers some advantage of this, and we therefore propose to make a present for himself or herself, or for any friend, of one copy of *Hearth and Home* for six months, or one copy of the *AMERICAN AGRICULTURIST* for one year, to those persons who send us \$12 for one of the machines while this offer is continued.

The New Sewing Machine as a
PREMIUM without Money.

To enable those to get this machine who can not raise even the \$12 to buy it, we make the following offer:

We will give the Machine to any one who will collect and forward **EIGHT** subscribers for **HEARTH AND HOME** one year at \$3 each; or **SIXTEEN** subscribers to **AMERICAN AGRICULTURIST** for one year, at \$1.50 each, expressage on the Machine to be paid by the recipient of it.

Almost any lady can readily secure this small number of subscribers and get a machine free; or some friend can thus obtain it for her, as a present.

Address

ORANGE JUDD COMPANY, 245 Broadway, N. Y.

THE BECKWITH PORTABLE Family Sewing-Machine. PRICE \$20. Enlarged and Improved. ITS WEIGHT IS 7 POUNDS.

We have been offering for a year past

The Beckwith Sewing-Machines,

both the original \$10 Machine and the \$12 Improved, as Premiums, and in that time have disposed of hundreds of them, which have given almost universal satisfaction, and elicited multitudes of testimonials of delight from the recipients. While we continue the offer of the Improved \$12 Machine as heretofore, we now offer the new

Portable Family Machine,

price \$20, which comprises all the excellencies of the former, with many valuable improvements. Its size and power are increased, and its capacity thus very much enlarged, without impairing its portability. There have been added cam and eccentric movement, a balance-wheel, and also an oscillating needle-clamp, by which the length of stitch can with the greatest ease be changed to the finest shade of variation without touching the needle.

We will give one of these \$20 Machines to any one who will collect and forward to us **Thirty** Subscribers to **American Agriculturist** at \$1.50 each, or **One Hundred** at \$1 each, expressage on the Machine to be paid by the recipient of it.

To any one sending us \$20, we will send one of the Machines (packed in a neat, portable case, with handle to carry it easily), expressage to be paid by purchaser. If, after having the Machine 30 days, and giving it a fair trial, it does not give satisfaction, upon the return of the Machine, *express charges paid*, we will refund the \$20.

ORANGE JUDD COMPANY,

245 BROADWAY, NEW YORK.

Aunt Sue's Prize Matter.

(Continued from page 433.)

Over 200 have been given by Melvina A. S., Shannon W. P., M. D. C., and F. R. Benson.

Between 100 and 200 by Fred Wilson, Howard B., Syl. Seely, J. I. K., E. W. F., S. J. D., and M. E. L.

Between 50 and 100 by Frank P. L., Addie B., Morgan S., J. N. Gets, M. D. Walton, Fayetteville (no signature), E. E. W., F. P. S., J. P. L., L. McF., Alfred W., C. M. W., Millic Mead, Addie A., May S., Sadie A. R., E. L. Ernest, H. H. B., F. P. D., L. H. L., A. T., C. S. D., C. H. T., L. F. B., L. A. B., M. A. M., H. A. A., H. S. B., E. A. C., G. H. W., L. J. K., and E. T.

Between 20 and 50.—Carrie K., Nettie M., A. E. C., W. H. F., D. L. W., M. T. B., W. R. F., H. B., Anna B. C., H. E. J., O. F. R., A. C. W., Jr., L. V., A. W., Belle B., T. A. C., F. H., W. C., E. M., M. E. F., L. A. T., C. A. M., J. P. D., E. S. C., L. A. W., F. E. H., Josie E., M. L. O., Frank P., D. H. R., Jesse T. B., C. C., E. H. L., F. L. S., J. W. M., J. A. P., Ida G., M. M. M., J. L. C., E. C. M., C. C. Y., and C. R. C.

20 or under.—H. M. L., A. K. S., I. G. N., M. C. T., L. N., Miss S., R. E. W., E. H. P., A. T. C., H. M. H., L. B. P., Hudson G., H. S., B. F. B., G. T. McC., A. Y., M. Y., E. N. P., H. F. B., and A. L. C.

The industrious but unfortunate ones who selected Ranges ("Mexican Cordilleras," "Macgillicuddy's Reeks," "Sierra Nevada," "Cumberland Mts.," etc.), and who have given between 150 and 200 rivers, are Arthur H. T., G. Franklin, A. L. Jackman, and W. H. N.

Between 100 and 150.—Emeline O. De F., Clara J. W., J. J. Potter, E. H. S., Mrs. A. F. S., Sarah A. W., and Morton B.

Between 50 and 100.—Mabel L., L. A. D., H. C. D., M. A. McC., W. F. C., F. W. C. C., A. M., C. L. N., Tacie P., M. C., W. B., D. L. F., G. P. F., A. M. B., T. H., A. W., Bertha Elliott (very neatly written list), and Gussie H. T.

50 or less by D. F., H. A., A. R. G., E. E. H., C. M. W., D. R., I. S., C. U. S., C. E. L., J. E. F., M. O., Mrs. I. H., F. L. S., H. A. C., C. E. C., F. O. B., U. M. Y., K. M. E., A. C. G., I. N. H., A. M., R. H. N., E. H. P., H. D., A. M. R., and F. Y. S.

Paving Stables.—"G. E. H.," Ingersoll, Ontario. The method of paving a barn-yard or stable with cobble-stones was described in the *Agriculturist* for November, 1871.

Damp Cellar.—"J. H. M.," Decorah, Iowa. A damp cellar should be underdrained. A drain cut two feet below the wall and communicating with another drain to carry off the water collected will render it dry. Sometimes the surface water or the drop from the roof of the house is the cause of the dampness. In such a case proper spouts should be fixed to the house, and a drain made to carry off all the water away from the building.

Soft Eggs.—"G. W. A.," Chillicothe, Ohio. Imperfect eggs or eggs without shells or any kind of eggs abnormally shaped are due to an irregular condition of the oviduct. This passage is sometimes inflamed in parts, when the functions of the inflamed portions are suspended. Thus the secretion of the shell or the inner membrane or even the white albuminous part of the egg may be prevented, or by want of proper action there may be a premature secretion by which eggs without yolks or two misshapen eggs attached together may be produced. Very often this is due to over exertion or chasing about of heavy bodied fowls, or by injury from jumping from high roosts. The remedy lies in removing the causes; one grain of calomel and one twelfth of a grain of tartar emetic in bread pills, and providing plenty of bone-meal or pounded oyster shells has also been recommended as a remedy for these troubles.

Paris-Green on Trees.—"M. W. G.," La Salle, Ill., writes that observing that a favorite walnut-tree was being stripped of its leaves by "worms," he syringed the foliage with water in which Paris-green had been mixed, and every caterpillar disappeared. He thinks that the same treatment would rid fruit trees of all insects, including the Codling-moth. So far as the Codling-moth goes we doubt its utility, as the moth only visits the tree to deposit her eggs in the blossom end of the young fruit.

As to Sorghum.—"W. T. S.," Ouchita Co., Ark., asks: 1st. What is the value of sorghum seed as feed for fowls as compared with corn at \$1 per bushel? 2d. Is the fodder of sorghum that is stripped from the

stalks when well cured as good feed for horses as corn-fodder? 3d. Are the frost-bitten suckers that shoot up from the butts of cane-stalks after they have been cut injurious to cattle when eaten? Replies: 1st. We cannot say; our fowls could never be induced to eat sorghum seed. We shall be glad to hear from those who know about it. 2d. Yes. 3d. Not absolutely injurious, but in-nutritious.

Wolf Teeth.—"G. S. N." It is not generally credited that wolf teeth injure the eyes of a colt. If the colt's eyes are suffering you may give it the benefit of the doubt and draw the teeth with forceps. They are easily drawn, and it can do no harm in any way.

Where is the Advantage?—"W. C. C.," Lindale, O. If a full-blooded merino ram can be procured for \$15, the profit of his use with fifteen common ewes would be found in the increased value of the fleeces of his progeny. If the value of native wool be 50 cents a pound, that of half-bred grade merinos will bring 40 cents, and three-quarter bred fleeces will run up to 40 to 50 cents. Besides, the weight of the fleeces increases from 2½ pounds in the common native up to 4½ or 5 pounds in the high-bred grades. If this improvement can be procured for so small an investment as the difference in price between a native and full-blond ram costing only \$15, there is no question about the advantage.

How to Keep Milk Sweet.—"C. W.," Millford, Pa. We know of but one way to keep milk from souring during the hot weather, and that is to keep it in a cool, well ventilated cellar or milkhouse, or in pans set in a stream of cool water. Anything added to the milk to prevent souring will spoil the flavor.

Sugar from Beets.—"Subscriber." Beets contain a great variety of others matters besides sugar, from which the sugar is separated only with difficulty. It is therefore impossible to make beet sugar successfully without costly machinery and chemical processes of defecation and refining.

Strawberries Under Glass.—"C. Herick." Strawberries may be forwarded by two or three weeks in a cold frame. The soil should be rich, and the earliest rooted plants put out, and the runners kept cut off. When cold weather comes on, and the ground has frozen, cover the plants with leaves or salt hay, and put over sashes or shutters to keep the rain out. In February the leaves or other litter are removed, the sashes put on, and the plants started into growth. Care must be taken in airing and covering at night as with other plants under glass. Any good, perfect variety may be used. Triomphe de Gand, Trollope's Victoria, President Wilder, and many others force well.

Corn-meal or Bran for Milch Cows.—"M. H. B.," Winnebago, Ill., writes: "I have sold my oats at 27 cents per bushel, intending to buy bran at \$10 per ton, or middlings at \$11 per ton. Corn is worth 30 cents a bushel of 60 pounds, or \$10 per ton. One of my neighbors thinks I had better feed corn-meal alone. I have been of opinion that, to produce milk to make butter, a mixture of corn-meal and bran would be better than corn-meal alone. What is your opinion?"—"If you have abundance of good grass that costs little or nothing, we would feed corn-meal alone. Corn-meal, weight for weight, is far more nutritious than bran. Bran is a good substitute for hay or grass, and in the winter, if bran costs no more per ton than hay, we should much prefer to feed a mixture of bran and corn-meal than corn-meal alone.

Concrete Houses.—"C. Hamlin," Indianapolis. Atwood's Country Homes, price \$1.50, contains all that is necessary to know about using concrete. The cost of such a house is about half that of brick.

To Destroy Lice.—"J. F. B.," Montgomery Co., Pa. Lice of all kinds may be destroyed by the application of lard or sweet-oil in which carbolic acid has been mixed at the rate of one part of acid to one hundred of oil or lard. For poultry, the mixture should be rubbed beneath the wings and on the top of the head, except in the case of sitting hens, which should never have grease of any kind applied to them, lest the eggs be injuriously affected.

Estimating Bushels and Gallons.—"H. C. Y. W.," Maryville, Tenn., sends the following rule for estimating corn in the crib—viz.: Multiply height and width of crib (when the sides are straight) by half the length, which gives the number of bushels of shelled corn. This is on the basis of taking two cubic feet, equal to 3.456 cubic inches of ears of corn, for a

shelled bushel, and is approximately correct for Western or Southern corn with large ears. The contents of a cistern are found by finding the number of cubic feet contained, and multiplying the amount by 7½, which gives the number of gallons very nearly.

Stuffing Birds and Animals.—"A. G. N.," "Maynard's Naturalist's Guide" is the best work on the subject. It is not practicable to treat the matter with sufficient detail in the paper. Price of the work \$2.

Cucumber Pickles.—"U. C.," Earls-ville, O. We believe that all the bright green pickles are, cooked or soaked in brass or copper vessels. It is said that if the salted cucumbers are soaked with grape-leaves they will be green—but we have not tried it.

Chowchow.—"Shelter Island." The composition of the English preparation is a secret with the makers, and we have never seen any successful attempts at imitating it.

Curious Egg.—"J. N. Walker, Haskins Co., Tenn.," sends us a sketch of a curiously-shaped egg laid by one of his hens. It was rather a double egg, consisting of two perfect eggs, excepting that they were soft ones, or without shells, each containing a yolk, and the two were connected by a cylindrical sac ¼ of an inch long and ½ of an inch in diameter, the contents of which were not connected with those of the eggs.

Fine Tomatoes.—"Altogether the finest and largest tomatoes we have seen this year came from Forestdale, the residence of W. T. Blodgett, Esq., Brandon, Vt., and reflect much credit upon his gardener, Mr. L. Longnor. They appear to be Trophies.

Hens or Ducks.—"G. W. H.," Cranford, N. J. There is no variety of duck that is more prolific in eggs than the common or so called "native." The Aylesbury and the Rouen ducks are of heavier weight. We have known a common duck to lay an egg daily for 70 days without intermitting a single day; yet, while this is more than any hen ever did with us in the same time, we would not change our hens for ducks as egg-producers.

Puerperal or Milk Fever.—"L. H.," Tilden. The symptoms of puerperal fever are easily confounded with those of the more common nervous debility after calving, or the more fatal parturient apoplexy which is not at all uncommon amongst highly fed and well kept cows. They are at first a hardly noticeable increase in temperature of the extremities, the horns suddenly changing from hot to cold, and an increased pulse, which occur within twelve hours after the birth of the calf. Restlessness follows and the cow changes place often, then she is unable to get up and after rising on to her knees rolls over on to one side or the other. Then great suffering is expressed by the convulsive motion of the legs and the turning of the head to the flank. The last symptoms are rigidity of the muscles and limbs, the stomach is distended, and death occurs very rapidly. The treatment consists in bleeding at the first possible moment, brisk purging by means of a pound (or 2½ ounces in case of a strong animal) of Epsom salts and 2 ounces of ginger, given in two quarts of gruel. Injections of soap and water should also be given, and the skin should be sponged with cold water and then rubbed dry and the cow covered with a blanket. In two hours the cow should be given 4 ounces of acetate of ammonia with 80 drops of tincture of aconite in a pint of warm oatmeal gruel. This should be repeated every four hours reducing the aconite by five drops each time until only 10 drops are given. It is best then to discontinue it. If the later stages have occurred the case will be almost hopeless, and nothing can be recommended but to procure the services of a veterinary surgeon who knows his business. In the later stages bleeding must be avoided as it will probably suddenly kill the animal. Some cows after arriving at adult age are subject to this complaint, especially those which are heavy milkers and keep in good flesh. The sudden change in the cow's system after calving and the excitement of the circulation consequent upon that, event are the causes.

Mill for Crushing Ears of Corn.—"J. H. N.," Nacoochee, Ga. We have found a common bark mill, such as is used to crush bark for tanneries, so as to run backwards, an excellent mill to crush ears of corn. If the corn ears are desired to be ground finely, the broken cobs and grain with the torn chucks may be run through a pair of mill-stones or a steel mill; the meal may then be fed to stock and the whole of it consumed. We have used such meal for all kinds of stock,

Bone-Dust.—"A. C. W.," Tazewell Co., Ill. Lister Bros. of Newark, N. J., manufacture bone-dust which they guarantee to be pure. Their price is \$35 per ton.

Snow-Shoes and Birch Canoes.

"E. W. C.," Brattleboro, Vt. These articles are very difficult to make by an unskillful white man. It is not every Indian even who is a good snow-shoe maker. The bows are prepared by the men and the raw hide by the squaws, who also do the filling of the shoes, and very few of them can make a really neat and light shoe. The Indian women also do the most of the work upon the birch canoes, and we doubt very much if the most ingenious white man can successfully compete with these people, who are trained from their early youth to do this work. It would be cheaper to buy them at the very moderate price asked for them, about \$2 for a pair of snow-shoes, and \$8 to \$12 for a canoe.

Hand-Mill for Grinding Wheat.

"W. F. C.," Galena, Ill. There are some very efficient hand-mills adapted to grinding wheat into meal or flour, which cost from \$8 to \$12, and which may be procured of almost any agricultural implement dealer in any part of the country. The Howard Mill No. 1, price \$8, is one of the best of these that we know of.

Experiments in Sowing Wheat.

H. Branch, London Co., Va., sends us a statement of the results of experiments in sowing wheat, of which the most interesting portion is that which shows the effect of thin sowing of seed. One of the experiments was in planting Fultz wheat in drills 12 inches apart, and sowing the grains singly 3 inches apart on one plot, and 6 inches apart on another. The result was that this seeding, equal to one fifth and one tenth of a bushel, yielded at the rate of 25½ bushels per acre with the least seed, and not quite 32 bushels per acre with the larger quantity on an average of ten plots planted altogether. This, however, is only what has been proved many times already.

Breeding In-and-In.

T. G. Hopkins, Setauket, L. I. It is sometimes advisable to breed a bull to his own progeny when it is desired to establish some particular point or characteristic aimed at. But, as a rule, we would advise the bull to be changed and new blood introduced every second year, and no young bull to be raised for use upon related stock.

Salt as a Manure.

"H. P.," Schnylkill Co., Pa. Salt is used to benefit clover, to stiffen the straw in wheat and oats, and as a fertilizer for asparagus. It may be used on clover and wheat or oats, at the rate of three to six bushels per acre, and for asparagus a peck to the square rod may be used with benefit.

Over-Ripe Wheat.

"J. H.," St. Clair Co., Ill. There can not be any such thing as over-ripe grain. When grain is ripe its growth is complete, and it is then in a perfect condition for seed. Wheat cut before it is ripe will ripen in the shock, but if it is cut too early will shrink in the ripening. Shrunken wheat should not be used for seed, because although there may be a perfect germ formed, there will be lack of nutriment for the growth of the young plant.

Ringbone.

"F. M.," Annaton, Wis. In an old horse ringbone is generally incurable, and is only made worse by attempts to cure. When the bony growth is completed there is seldom any lameness, and stiffness of the joint is the only bad effect. In a young horse it has often been cured by the application of an ointment of bin-iodide of mercury and lard, but this remedy should be used with caution.

Wants Draining.

"G. E. B.," Mishawaka, Ind., has a farm which eight years ago was under water, but since then has been dry. Corn planted upon this land comes up well at first, but soon turns yellow and stops growing. What is the matter with it?—We should say this land wants draining; it is very probable that the stoppage of growth occurs just when the roots reach the point where the soil is saturated with water, as this is exactly the way corn behaves under such circumstances. Try draining a few acres.

Color of Durham Cattle.

"W. H.," Lacrosse, Wis. Pure blood Durham animals of a red color are not at all unusual. The general color of this stock is red and white mixed, and entirely white or entirely red animals are common.

Keeping Eggs.

"W. T. L.," Portland, Me. The air bubble in the egg has nothing to do with their preservation or decay. The shells of eggs are porous

and permeable to air. As they become old the moisture evaporates from them to some extent, and air supplies the place of the moisture. The access of air tends to cause the egg to spoil. If by any means the evaporation can be prevented the egg may be preserved for a longer or shorter time. By smearing the shells with linseed oil eggs have been kept fresh for six months, but no mere position in which they may be placed can have any prolonged effect in keeping them fresh, if it has any at all. We have no confidence in any statement made by the London Farmer upon any matter whatever.

Jersey and Alderney.

"W. H.," Lacrosse, Wis. Jersey and Alderney are generally used to designate the same breed of cattle, but wrongly so, as there may be Alderney cattle that are not Jersey. Alderney and Jersey are two islands of the group known as the Alderney or Channel Islands. Some years ago the stock from this group of islands were known as Alderney cattle; but now those from the island of Jersey are known solely as Jersey cattle, and those from the island of Guernsey as Guernsey cattle.

Bremen Agricultural Exhibition.

—We have received a circular of the Executive Committee of the International Agricultural Exhibition to be held in Bremen, in June, 1874. Information may be procured by addressing the Committee at their office, Bredenstrasse, Bremen.

Switching the Tail.

"J. R. J.," Holden, Mo. The habit of switching the tail is often caused by the presence of worms in the horse; they are generally situated in the lower intestine. An injection of a weak solution of salt in water is often successful in causing them to be discharged. Two ounces of salt to a gallon of water is sufficient. Their presence may be known by the appearance of scales of dry mucus around the anus.

Soiling Crops.

"S. A. W.," Baltimore Co., Md. After the fall-sown rye is consumed in the spring there should be a crop of clover or orchard grass ready to follow, then early sown oats would be the next, or oats and peas, or a crop of fall-sown tares might be prepared to follow the rye. Corn would follow the oats.

Wild Flax.

"G. E. B.," Mishawaka, Ind. There is a common species of wild flax which is a perennial plant, and which can not therefore be destroyed by cutting. Plowing and burying the roots or gathering and carrying them off would be the best plan of ridding fields of this weed.

The Morgans.

—It is certainly to the credit of the class of horses known as Morgan horses that it is selected as the type of the perfect horse by that very capable horseman and intelligent writer, the Rev. W. H. H. Murray. And now we read a well authenticated account of a Morgan horse recently exhibited at an agricultural fair, which beneath the well-borne burden of 27 years steps out upon the ring actively and as gayly as a colt of three years. The value of the old Morgan horse to the agriculture of the country in founding this race of hardy, active horses is hardly to be computed in dollars.

Destroying Old Stumps.

"W. A.," West Charlton, N. Y. There is a method of saturating stumps with saltpeter or petroleum and making them so inflammable that they will burn away; but we know of none by which they are destroyed by acids. The plan is to bore a hole to the heart of the stump and pour a quantity of petroleum into it, or put a quarter of a pound of saltpeter therein, and when the stump is well soaked with it to set it on fire.

Dressing for Sores.

—There is no better dressing for sores on any animal in warm weather or dry-time than common clean pine tar.

Steam Pumping Engines.

W. A. Cuning, Wilmington, N. C. There are a large number of American engines suitable for light work, such as pumping for irrigating purposes, and which may be geared directly to a rotary pump. A modern invention known as the Pulsometer, which works without any engine and by the direct action of the steam, is probably the best irrigating or pumping machine known at the present time. It lifts the water and also discharges it with whatever force may be required.

Tumor on the Jaw.

"A. M. W.," Mitchell Co., Iowa. A tumor on the jaw of a boifer or other animal is generally the effect of a blow or other injury. As it arises from injury to the bone no outward application is of any avail unless for the purpose of inducing suppuration and discharge. A diseased growth of bone, however, almost always occurs, which ends final-

ly in a permanent enlargement or necrosis which at length terminates fatally. If a surgeon can not be procured, we would advise the application of common iodine ointment twice a day to the swelling. If it is not the effect of an injury it is likely to be the result of a scrofulous condition in which case a cure is very uncertain.

Marl.

"B. P. R.," Windsor Co., Vt. What is known in your locality as marl is not lime in the condition in which it should be used to mix with muck for manure. The lime should be caustic or free from carbonic acid. Marl is an impure carbonate of lime, and is quite inert as a decomposing agent for muck. It may, however, be mixed with the muck, and after a year's or even a season's exposure may be usefully applied to the land. But caustic lime is much more rapid and effective than marl.

Deep Cans.

"A Farmer's Daughter," Andover, Mass. The deep cans used in setting milk are 8 inches in diameter and 20 or 25 inches deep. They are made by the Iron-clad Milk Can Company, of New York. The method of using them and skimming the cream, with an engraving of the skimmer, is described in the *Agriculturist* for May, 1872.

Farming in West Virginia.

"R. G. A.," Pittsburgh, Pa. We would advise any person desiring to change his location to visit the place he proposes to settle in, and examine, not only the soil but the character of the farmers and their ways of doing things. A man of sufficient judgment to run a farm would make a very satisfactory guess as to the propriety of removing thither. We do not wish to advise as to making investments of money.

Dairy Questions.

"H. S. S.," Washington. It depends somewhat upon the management of the milk whether or not milk set in deep cans will yield as much cream as milk set in shallow cans. The temperature has more to do with the yield of cream than the shape of the can. A cow that would yield a pound of butter a day for a lengthened period would probably bring in New York \$75 or more if the right purchaser should happen to be on hand. The lactometer was described in the *Agriculturist* of October, 1872, to which please refer.

Rape.

"W. B. E.," Plymouth, Ill. We have no doubt that rape might be successfully cultivated in Central Illinois, although it thrives best in moist climates. It is largely grown in Great Britain as food for sheep and green forage for other animals, and in the drier climate of France and Germany, a closely allied plant under the name of Colza is extensively and profitably raised for the seed from which oil is expressed. Probably the winter rape would be the most successful in Illinois, sown in August for fall and early spring feed.

Sewing Machine Patents.

"W. B. E." We do not know that any of the patents on sewing machines have yet expired. There are a very large number of patents on recent improvements which will continue the monopoly practically for several years even if none should be extended. But there are some cheap machines which are very good. The Beckwith machine, described in the *Agriculturist* often of late, is sold at \$10 to \$20, and will do satisfactory work.

Rancid Butter.

"W. M. S.," Vancouver, W. T. There is no way of sweetening rancid butter to make it entirely palatable. It may be improved by washing in sweet milk in a churn, and then in pure water, and finally, by working over again with a quarter of an ounce of fine white sugar and three quarters of an ounce of salt to the pound of butter. It must then be consumed at once or it becomes as bad as ever again very soon.

Charcoal for Hogs.

"W. F. L.," Shelby Co., Ind. Charcoal in small quantities may be prepared by simply burning hard wood in a fire, and when it is thoroughly ignited plunging the brands into water. If a larger quantity is desired, the wood may be put into a heap closely packed and set on fire, and when briskly burning it should be closely covered with sods and allowed to smolder for two or three days, when it is to be covered with earth and left to cool. The result will be very fair charcoal.

Protection for Cattle.

—The act of Congress for the protection of animals in transit went into effect on October 1st. It provides that all swine and stock transported over railroads and by water, where there are not sufficient accommodations for rest and feeding, shall in every twenty-eight hours be stopped, rested, and fed for five hours. There is a penalty of from one to five hundred dollars for violation of the act.

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Gardening for Profit.

A Guide to the Successful Cultivation of the Market and Family Garden.

By PETER HENDERSON.

Finely Illustrated. Price, Post-paid, \$1.50.

The success of this book has probably not been equalled by that of any horticultural work of the present day. Its popularity is due to the fact that it tells just what people wish to know—the way in which the author made money by gardening—and puts in a plain, striking light all the requisites to success. The writer was not afraid to have people know that he cultivated his land for profit, and, more than that, he was quite willing that all should know and practice, if they chose, the very processes which he had found most conducive to the desired end. The late Horace Greeley said of this book: "There are marvels of transformation and rapid reproduction recorded therein which might well shame the dull fancy of the author of Aladdin or of Kaloolah. There is no theory about it; a man who has made himself rich by market-gardening plainly tells our young men how they can get rich as easily as he did, and without wandering to California or Montana for it either." And tens of thousands who have read and profited by the work could give similar testimony. It is unquestionably the most thorough and the best book of its kind that has yet come from the hand of an American author.

Practical Floriculture.

A Guide to the Successful Propagation and Cultivation of Florists' Plants.

By PETER HENDERSON,

Author of "Gardening for Profit."

Beautifully Illustrated. Price, Post-paid, \$1.50.

In this work, which has everywhere become so deservedly popular, not only is the whole "art and mystery" of propagation explained, but the reader is taught how to plant and grow the plants after they have been propagated. The work is not one for florists and gardeners only, but the amateur's wants are constantly kept in mind, and we have a very complete treatise on the cultivation of flowers under glass, or in the open air, suited to those who grow flowers for pleasure as well as those who make them a matter of trade. The work is characterized by the same radical common-sense that marked the author's "Gardening for Profit," and it holds a high place in the estimation of lovers of floriculture.

HOW CROPS GROW.

A Treatise on the Chemical Composition, Structure, and Life of the Plant.

With Numerous Illustrations and Tables of Analyses.

By Prof. SAMUEL W. JOHNSON,

OF YALE COLLEGE.

PRICE, POST-PAID, \$2.00.

This book is a guide to the knowledge of agricultural plants, their composition, their structure, and modes of development and growth; of the complex organization of plants, and the uses of the parts; the germination of seeds, and the food of plants obtained both from the air and the soil. Very full and accurate tables of analyses are given, and tables of the proportions existing between different principles, oily, starchy, or nitrogenous, in the same and different plants. The book is an invaluable one to all real students of agriculture.

HOW CROPS FEED.

A Treatise on the Atmosphere and the Soil, as related to the Nutrition of Agricultural Plants.

By Prof. SAMUEL W. JOHNSON,

OF YALE COLLEGE.

ILLUSTRATED. PRICE, POST-PAID, \$2.00.

The work entitled "How Crops Grow" has been received with very great favor, not only in America, but in Europe. It has been republished in England under the joint Editorship of Professors Church and Dyer, of the Royal Agricultural College, at Cirencester, and a translation into German has been published, at the instigation of Professor von Liebig. This volume—the companion and complement to the former—has been welcomed by those who appreciate the scientific aspects of Agriculture, and are persuaded that a true Theory is the surest guide to a successful Practice.

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The author of this work has aimed to embody, in a plain and concise manner, all the useful and practical facts which study and experience have yielded to the inquiring cranberry grower of the present time. The business has increased enormously within the last ten years, and knowledge and experience have kept pace with that increase.

The endeavor has been to make this work as comprehensive as possible; and it is believed that it will prove an efficient guide to all who may have cause to consult its pages.

PARSONS ON THE ROSE.

A Treatise on the Propagation, Culture, and History of the Rose.

REVISED AND NEWLY ELECTROTYPED.

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The Rose is the only flower that can be said to have a history. It is popular now and was so centuries ago. In his work upon the Rose, Mr. Parsons has gathered up the curious legends concerning the flower, and gives us an idea of the esteem in which it was held in former times. A simple garden classification has been adopted, and the leading varieties under each class enumerated and briefly described. The chapters on multiplication, cultivation, and training, are very full, and the work is altogether the most complete of any before the public.

THE YOUNG HOUSEKEEPER'S FRIEND.

By MRS. CORNELIUS.

REVISED AND ENLARGED.

The aim of the writer of this work has been to furnish to young housekeepers the best aid that a book can give in the departments of which it treats. No printed guide can perfectly supply the place of that experience which is gained by early and habitual attention to domestic concerns. But the directions here given are so minute and practical, that the observance of them will prevent very many of the perplexities which most young people suffer during their first years of married life.

The recipes, with very few exceptions, are furnished from the author's own experience, or that of her immediate friends. An ample variety is given for furnishing the table of any American family; but especial reference has been had to those who have neither poverty nor riches; and such directions have been given as will enable a housekeeper to provide a good and healthful table, or, if desired, a handsome one, at a moderate expense.

How well the author has succeeded is manifest from the very great favor with which past editions, through a period of twenty-five years, have been received. And now, in this new edition, she has rendered the book more than ever worthy of patronage, by a thorough revision, the omission of a few recipes of least value, the addition of full directions for Canning Fruits, and more than One Hundred and Fifty New Recipes which have been tested by experienced housekeepers. While the lessons of economy taught by the late war have not been forgotten, the author has well met the demands of the present customs of society for a greater variety of dishes than used to be thought requisite for the ample supply of the family table.

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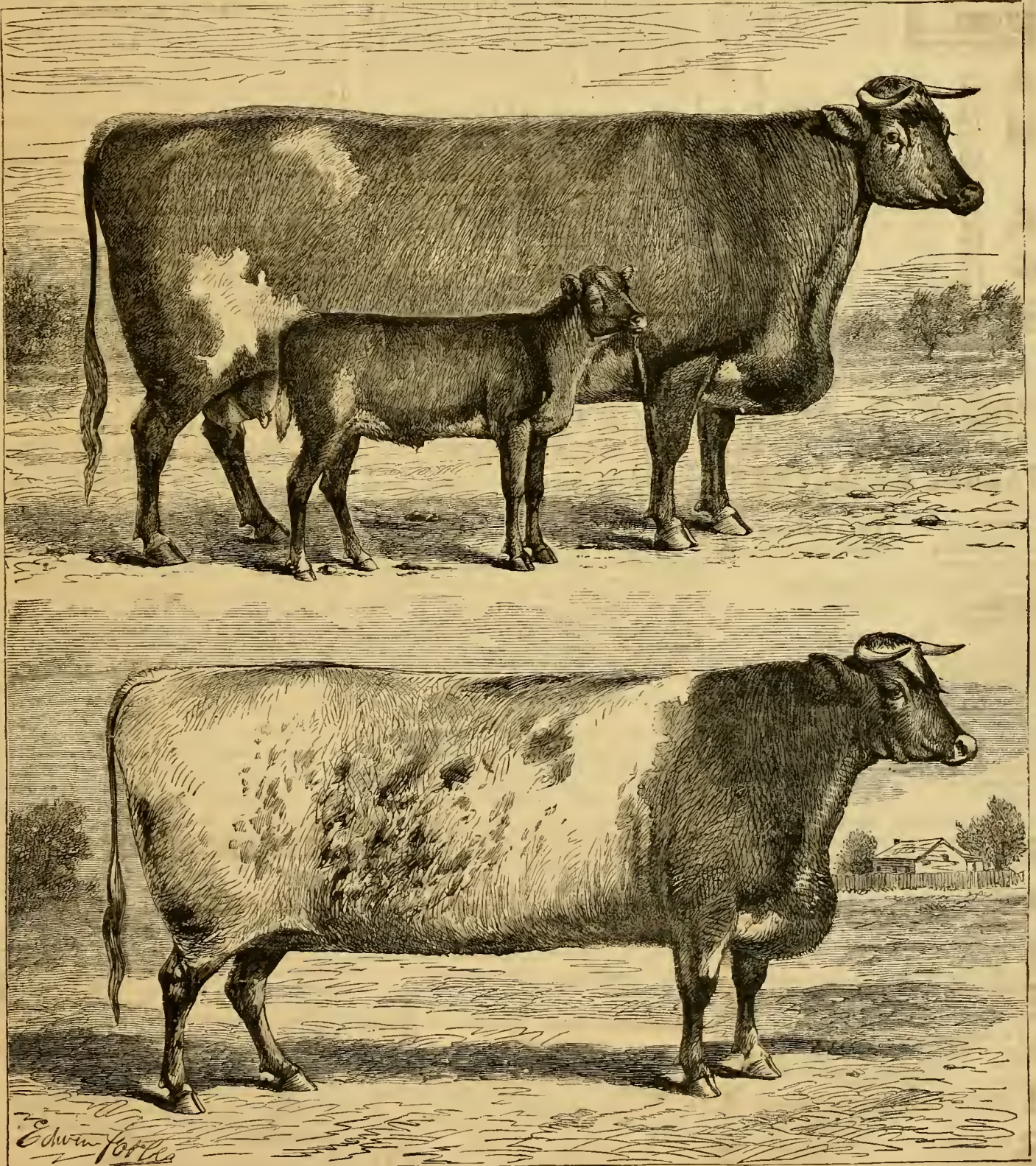
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Shall He Buy a Farm?—"A. M. C.,"

Springfield, Mass. At the present time it requires but very little observation to perceive that a farmer who is out of debt is in the most independent position possible. Panics and financial disaster affect him least of all classes. The necessities of life and many comforts are positively assured to him, while the artisan or the merchant may suddenly find himself, for no fault of his own, reduced to poverty if not distress. Generally those farmers who have been merchants at one time, are the most successful in their adopted business, bringing thereto system and economy. A merchant wearied with unprofitable competition, possessing \$5,000 of capital, with a certainty for his family in the shape of a paid-up life policy for an equal amount, might safely venture upon farm life if any man might. But the safe rule of "pay as you go" should be adopted.

Calendar for December.

1 Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Indiana, and Oregon.			N. Y. City, Philadelpia, New Jersey, Penn., Ohio, Indiana, and Illinois.			Washington, Maryland, Virginia, Kentucky, Missouri, and California.		
		Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.	Sun rises.	Sun sets.	Mo'n sets.
1	M	7:10 4 28	4 3	7:54 34	4 1	7:04 39	3 58	7:10 4 28	4 3	7:54 34
2	T	7:11 4 28	5 17	7:54 34	5 14	7:04 39	5 10	7:11 4 28	5 17	7:54 34
3	W	7:12 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:12 4 28	5 39	7:54 34
4	T	7:13 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:13 4 28	5 39	7:54 34
5	F	7:14 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:14 4 28	5 39	7:54 34
6	T	7:15 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:15 4 28	5 39	7:54 34
7	W	7:16 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:16 4 28	5 39	7:54 34
8	T	7:17 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:17 4 28	5 39	7:54 34
9	F	7:18 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:18 4 28	5 39	7:54 34
10	T	7:19 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:19 4 28	5 39	7:54 34
11	W	7:20 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:20 4 28	5 39	7:54 34
12	T	7:21 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:21 4 28	5 39	7:54 34
13	F	7:22 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:22 4 28	5 39	7:54 34
14	T	7:23 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:23 4 28	5 39	7:54 34
15	W	7:24 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:24 4 28	5 39	7:54 34
16	T	7:25 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:25 4 28	5 39	7:54 34
17	F	7:26 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:26 4 28	5 39	7:54 34
18	T	7:27 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:27 4 28	5 39	7:54 34
19	W	7:28 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:28 4 28	5 39	7:54 34
20	T	7:29 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:29 4 28	5 39	7:54 34
21	F	7:30 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:30 4 28	5 39	7:54 34
22	T	7:31 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:31 4 28	5 39	7:54 34
23	W	7:32 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:32 4 28	5 39	7:54 34
24	T	7:33 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:33 4 28	5 39	7:54 34
25	F	7:34 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:34 4 28	5 39	7:54 34
26	T	7:35 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:35 4 28	5 39	7:54 34
27	W	7:36 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:36 4 28	5 39	7:54 34
28	T	7:37 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:37 4 28	5 39	7:54 34
29	F	7:38 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:38 4 28	5 39	7:54 34
30	T	7:39 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:39 4 28	5 39	7:54 34
31	W	7:40 4 28	5 39	7:54 34	5 36	7:04 39	5 32	7:40 4 28	5 39	7:54 34

PHASES OF THE MOON.

MOON.	BOSTON.	N. Y.	WASH'N.	CHAS'TON.	CHICAGO.
Full M'n	3 11 36 ev.	11 24 ev.	11 12 ev.	11 0 ev.	10 30 ev.
3d Quart.	11 30 ev.	4 53 ev.	4 46 ev.	4 34 ev.	4 4 ev.
New M'n	19 2 5 ev.	1 53 ev.	1 41 ev.	1 29 ev.	0 59 ev.
1st Quart.	26 11 21 m.	11 9 m.	10 57 m.	10 45 m.	10 15 m.

AMERICAN AGRICULTURIST.

NEW YORK, DECEMBER, 1873.

A farmer who has worked hard in the spring, summer, and autumn is entitled to some rest and recreation in winter. A healthy man can often obtain rest by a change of work. Idleness is not rest. To spend several hours each day sitting with muddy boots and dirty clothes around a hot stove in a close room at a corner grocery is neither rest nor recreation to an intelligent man. Country gossip is seldom of an elevating and refining character. Do not listen to it. The receiver of stolen goods is as bad as the thief. A quiet but decided "I do not wish to hear it" will stop the mouth of the retailer of scandal. An American farmer is, or should be, a gentleman. He should recognize the inherent dignity of his position. He should be a man who knows his rights and dares maintain them. His life should not be spent in the mere routine of daily toil. Work he must; but he should not be slow about it. He should do it with his might. We should aim to do more work in fewer hours. It is said that a farmer's work is never done. Whatever truth there may be in the remark is due not to the nature of the work but to the character of the man. The writer is himself a farmer, and speaks from experience. The ordinary labors of a farm in winter can as a rule be done in half the time they now occupy. If you doubt it test the matter to-morrow. Write down everything you have done to-day and how long it took to do it. Then write down what you will have to do to-morrow, and make up your mind to do it in the best manner and in the shortest possible time. Do this day after day until it becomes a habit. Before night prepare for the next morning's work. Good managers always do this, and it is one secret of their success.

Hints about Work.

Hard Work, such as chopping wood or thrashing with a flail, is not favorable to mental activity. A farmer should economize his energies both of mind and body.

The more Work a Man does the more he can do is a truth which we should all do well to remember.

The Busiest Man is the man of most leisure. The indolent man has never time to do anything he does not wish to do.

Early Rising is good; getting at your work early is better. There are men who pride themselves on getting up early in the morning who do nothing after they are up—or do it listlessly.

Energy is the one quality which a farmer of the present age most needs. It is not the number of hours that a man works, but the skill, intelligence, and activity that he brings to it are the test of his ability and industry.

Machinery must take the place of hand labor; but machinery, however perfect, needs a man of intelligence to keep it in order and to manage it to the best advantage. Machinery does not do away with the necessity for labor; it merely changes its character. It demands brains rather than muscle.

Thinking is harder work than chopping, and much more remunerative.

Better Hire an Extra Man than devote your whole time to mere routine work.

A Good Boy can frequently be obtained in the winter for little more than his board.

It is Poor Economy for a farmer to spend several hours every day in doing work which such a boy can do nearly or quite as well as he can.

Make the House Comfortable.—See that the windows and doors do not admit a stream of cold air. Every hole stopped will save a stick of wood. A window rattling in the casement is a reflection on the owner's intelligence.

Many an Old House that is as "cold as a barn" may be made very comfortable by the aid of a few laths, shingle-nails, and putty. Try it.

Animals require daily care. Make them comfortable. Feed regularly and liberally, and see that they have a constant supply of fresh water.

Shelter Saves Food. It sometimes does more than this. It saves the life of the animal.

Butter and Tallow are not economical foods for cows and sheep. When we let an animal grow thin in winter we are feeding fat and flesh. It is injurious to the animal and a great loss to us.

Chaffing Hay and Straw add nothing to their nutritive value. But with proper arrangements it is more convenient to feed cut fodder; and when mixed with meal or bran horses, cows, and sheep will eat cut straw and stalks as greedily as hay. When there is an abundance of straw and stalks this is a very economical method of wintering stock. A bushel of chaffed straw (say 8 lbs.) and a quart of corn meal, three times a day, is a good allowance for a cow not giving milk. Cows giving milk should be allowed more meal or bran. Say three pints of corn meal to a bushel of cut straw, three times a day; or a quart each of meal and bran.

Horses should be fed according to their work. A bushel of cut straw and two quarts of corn meal may be regarded as equivalent to hay. If the horses are doing but little they will do well on this mixture—being allowed all they will eat up clean. If at steady work, give two or three quarts of oats or other grain three times a day in addition.

When Feeding Hay it is a bad practice to let the horse stand with a rackful of hay before him all the time.

Sheep.—We think it is a good plan to give all sheep a little grain every day in winter.

Fattening Sheep, of course, should have grain enough to push them forward as rapidly as possible. One pound of corn per head per day for Merinos is an average allowance. The large breeds may be fed 1½ lb. each per day. The better plan is to commence with half a pound of grain per day, and as the sheep become accustomed to it gradually increase the amount. For the last month of fattening, Merino sheep can be fed 1½ lb. of corn per day to advantage. With good, bright straw and the above allowance of grain, well-selected sheep should gain from 1½ to 3 lbs. each per week.

Breeding Ewes and Store Sheep will winter well on good straw and half a pound of corn daily.

Last Spring's Lambs should be kept separate from the older sheep. It would be well to give them at least one feed a day of hay.

SWINE.—Sows that are desired to breed next April should be culled this month. A little extra feed will secure the object. Afterwards the sows should be fed sufficient to keep them in good, healthy condition, but not fat. Young sows that are growing should be fed more liberally than older ones. The latter, if they have a warm, dry pen to run in, with plenty of bedding, will require very little food. We feed our own breeding sows principally on bran soaked in water or the slops from the house. A few mangels may be fed with great advantage to the health of the sows. But if you have not an ample supply better delay feeding them out until towards spring.

Fattening Hogs should be pushed forward rapidly. If they do not eat well they will not pay for the little they do eat. Better sell them as soon as their appetite begins to fail.

Last Spring's Pigs which are to be fattened next summer or fall should be fed liberally. This is the great secret of producing choice pork at a cheap rate. A pig well wintered is half summered.

If the ground is not frozen plowing is still in order wherever it will facilitate work in the spring.

Wheat Fields should be examined to see if there are any parts liable to be injured by water either now or in the spring. The necessary ditches should be dug before the ground is frozen.

Get the Implements all Under Cover. If any need repairs place them where it will be convenient to get at them during the winter.

Manure may still be drawn out and spread on grass land or on winter wheat.

Clean up the Premises and make everything tidy for winter.

Work in the Horticultural Departments.

It is difficult to make suggestions about work this month, as these notes are necessarily written some weeks beforehand. A severe snow-storm or a freezing spell may take place before this number reaches our readers, or the weather may remain mild and the ground open, so that many garden operations can be carried on. Improve the stormy days when work out-of-doors is impossible in reading the best books upon gardening in its different branches. Very few horticultural books have been published that do not contain some useful hints.

Orchard and Nursery.

Something can be done this month in many sections of the country to lighten the labors of the coming spring, and advantage must be taken of every favorable day that will allow out-door work to be well and profitably done.

Cions.—Cut from the growth of the past season before the wood freezes. Label each variety and store in fresh sawdust in the cellar, and look to them occasionally during the winter to see that they do not dry out.

Pruning, except upon large limbs, may be done now. Young orchards, if looked after every year, will seldom require any large limbs to be cut off; besides, all the necessary pruning can be done at a time when other work is not pressing.

Stocks for root grafting may be lifted whenever the ground is not frozen, and heeled-in in a dry place or in the cellar, ready for grafting during the winter.

Manure.—Continue to cart out manure to the orchards whenever there is time to spare from other work. It is better for a team to work a little every day than to remain idle in the stable.

Mice and Rabbits.—To prevent their injuring the trees, keep all rubbish away from the trunks, and whenever snow falls tramp it down firmly around the tree. Fresh blood smeared upon the trunks will prevent damage by rabbits, and paper, tarred

or otherwise, or cloth wrapped around the base of the trunk will keep off mice.

Heeled-in Trees.—See that they have drains to take away the surface water if necessary, and be sure that the roots are properly covered.

Fruit stored in cellars will need looking after. Take advantage of the markets to sell fruit when the prices are good; better sell at once than wait until spring and lose half the fruit, even if prices are somewhat lower now.

Fences.—Look after fences and gates, and have all closed and strong enough to turn stray cattle. A stray animal will do more damage in a young orchard in an hour than can be repaired in years.

Labels.—Prepare a good supply of these both for out-of-door use and to mark the trees shipped in the spring. Every tree sent out by a nurseryman should have a label firmly attached to it on which is plainly written the correct name of the variety.

Seeds of stone fruit should be buried in the open ground at once if it has not already been done. In the spring most of them will have sprouted and be ready to plant in furrows in the nursery.

Fruit Garden.

Manure can be drawn out at any time, and it is usually better to haul when the ground is frozen, as then the carts will not make deep ruts.

Grape-vines, if not pruned last month, should be cut back at once when not frozen. If left until spring the vines are very likely to bleed. General directions for pruning were given last month.

Strawberries.—When the ground freezes and indications show that winter has set in, cover the ground and vines with straw or leaves. This is not to prevent the vines from freezing, but to obviate the effects of sudden changes, which do more harm than severe cold.

Kitchen Garden.

The season is sometimes mild enough to plow or spade this month, and much can be done to prepare the soil for early spring planting. Land plowed in the fall is ready to work earlier in the spring than when left untouched. There will probably be more or less rubbish that has collected around the garden, and if snow has not yet fallen this can be cleared up so that no time will be lost in such work when the season opens.

Manure is the prime necessity of the gardener, and as the making and composting can be carried on during the winter as well as at other seasons, no part should be allowed to go to waste. Plenty of earth should be stored under cover for mixing with stable and hog-pen manure, and a supply of dried earth ought to have been prepared for use in the privy. If there are in the neighborhood breweries, slaughter-houses, and other establishments from which fertilizing material can be procured for mixing with stable manure, a good supply ought to be secured.

Hot-bed.—Paint and repair the sashes during the cold weather, and make straw mats at times when there is little to do outside.

Seeds which have not yet been cared for must be looked after, cleaned, labeled, and stored in a dry, cool place out of the reach of mice.

Tools.—Repair broken tools on stormy days, and give the wood-work a coating of crude petroleum to protect it from the weather. A marker is a very convenient implement to use in a garden, and so easily made that any one with a little skill in handling tools can readily make one.

Repair Shop.—On every place there ought to be a room fitted up with bench and tools for repairing and making such things as are necessary upon a farm or in a garden. The internal fitting up may be made as elaborate as the means of the owner will allow, or it may contain simply a work-bench with a few tools which are absolutely necessary.

Cold Frames for wintering cabbages should be completely opened every mild day, and ventilated

whenever the weather will allow; on cold, frosty nights cover with straw mats or shutters. Look out for mice, as they often do much damage to the plants. Trap or use poison to destroy them.

Celery stored in trenches will need additional covering as the cold increases; straw or leaves and boards will answer for covering small quantities.

Spinach.—Apply a slight covering of straw or leaves; it will start earlier in the spring if it has had a little protection during winter.

Flower Garden and Lawn.

If the suggestions given last month have been regarded, little remains to be done except to give protection to half-hardy shrubs and trees.

Roads may be staked out and made ready to commence work upon as soon as the spring opens. Stones for road drainage can be drawn at any time during the winter if they have been dug out and small stones placed under them to prevent their freezing to the ground. A road in order to be properly made should have the soil removed to a depth of 2 to 2½ feet and the opening filled in with stones, which should be gradually smaller near the top, and the surface finished off with three inches of good gravel. This will make a road which will always be dry during the spring and heavy storms. Walks should be made in the same way, except that the stones need not be as large as those used for roads and drives.

Plans.—Make careful plans of the house and its surroundings, so that if at any time a label should be lost the trees and principal shrubs may be recognized by their position.

Rustic Work of all kinds can be easily made if one has a little ingenuity in devising neat patterns. Nearly every farm possesses a swamp in which plenty of material may be gathered for such work. Cedar and the broad-leaved laurel are the two most common woods used, though grape-vine is often used, and we have found *Andromeda lignstrina* a very useful wood for this purpose, especially where straight work is required. In some localities this last shrub grows in large quantities as underbrush in the swamps.

Bulbs may yet be planted if the ground is still open. Give a protection of coarse manure or leaves, as the bulbs will flower much stronger for a little covering.

Greenhouse and Window Plants.

The heat required for a greenhouse will depend a great deal upon the kind of plants grown. If stove plants, such as tropical ferns and the like, a high temperature will be needed; but for ordinary plants a temperature of 45° to 50° at night and from 60° to 70° during the day will be sufficient to keep the plants in a healthy, growing, and blooming condition.

Ventilation.—Give air every mild day, always opening the ventilators on the opposite side from which the wind blows.

Bulbs.—Bring from the cellar a few at a time for winter flowering.

Cactuses will need rest, except the Epiphyllums and such as are winter bloomers.

Pelargoniums or show geraniums should be placed as near the glass as possible, and kept in good shape by means of proper pruning and tying.

Window Plants.—Keep the plants in a healthy condition by syringing often to remove dust. Plants should have a warm window where they will get plenty of sunlight and air.

Liquid Manure.—Keep a supply on hand to water the plants once a week in order to accelerate their growth. Bulbs and roses in pots are especially benefited by copious waterings if the mixture is not too strong.

Camellias.—Keep in a cool house or room until the buds are well developed and ready to break, when they may be taken into a warmer place and brought into flower. Do not wet the flowers.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending Nov. 13th, 1873, and for the corresponding month last year.

3. TRANSACTIONS AT THE NEW YORK MARKETS.
RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats.
25 d's this mth 3,799,000 5,419,000 3,791,000 107,000 539,000 1,156,000
25 d's last mth 3,411,000 4,416,000 3,813,000 101,000 57,000 547,000

SALES. Flour, Wheat, Corn, Rye, Barley, Oats.
25 d's this mth 4,147,000 4,606,000 4,578,000 119,000 214,000 1,741,000
25 d's last mth 4,199,000 4,199,000 4,596,000 147,000 56,000 1,913,000

2. Comparison with same period at this time last year.
RECEIPTS. Flour, Wheat, Corn, Rye, Barley, Oats.
25 days 1872.....3,799,000 5,419,000 3,791,000 107,000 539,000 1,156,000
21 days 1871.....3,315,000 2,817,000 3,563,000 26,000 1,111,000 895,000

SALES. Flour, Wheat, Corn, Rye, Barley, Oats.
25 days 1873.....4,147,000 4,606,000 4,578,000 119,000 214,000 1,741,000
21 days 1872.....3,315,000 2,817,000 3,563,000 26,000 1,111,000 895,000

3. Stock of grain in store at New York.
Wheat, Corn, Rye, Barley, Oats, Malt.
Nov. 8, 1873.....1,595,500 2,951,000 109,953 23,804 630,466 91,461
Oct. 6, 1873.....1,270,501 5,129,537 43,297 613,723 1,451,898 201,737
Oct. 7, 1872.....23,112 3,812,181 39,925 40,925 2,505,006 12,353

4. Receipts at head of tide-water at Albany each season to Nov. 1st.
Flour, Wheat, Corn, Rye, Barley, Oats.
1873.....118,400 19,116,200 16,075,600 914,400 1,342,200 2,891,100
1872.....104,100 7,801,400 25,184,200 357,300 2,119,000 5,075,300
1871.....233,000 18,181,000 18,124,400 707,700 2,828,000 4,833,200
1870.....355,000 13,918,300 4,554,300 5,299,000 2,306,800 5,210,300

CURRENT WHOLESALE PRICES.

	Oct. 13.	Nov. 13.
PRICE OF GOLD.....	108 1/2	108 1/2
FLOUR—Super to Extra State	\$5 40	\$5 40
Super to Extra Southern.....	6 50 @ 11 00	5 25 @ 11 00
Extra Western.....	6 20 @ 11 25	5 60 @ 11 00
Extra Genesee.....	7 00 @ 9 75	6 00 @ 9 25
Superfine Western.....	5 40 @ 6 15	4 90 @ 5 50
RYE FLOUR.....	4 75 @ 6 00	4 25 @ 5 25
CORN-MEAL.....	2 65 @ 4 00	2 65 @ 3 90
WHEAT—All kinds of White.	1 55 @ 1 80	1 45 @ 1 75
All kinds of Red and Amber.	1 30 @ 1 65	1 25 @ 1 55
CORN—Yellow.....	63 @ 64	62 @ 63 1/2
Mixed.....	54 @ 55	53 @ 54
White.....	64 @ 66	63 @ 64
OATS—Western.....	51 @ 58	45 @ 50
State.....	51 @ 58	45 @ 52
RYE.....	88 @ 97	85 @ 95
BARLEY.....	1 25 @ 1 75	20 @ 1 65
HAY—Bale, 100 lbs.....	95 @ 1 50	1 00 @ 1 50
STRAW, 100 lbs.....	65 @ 90	60 @ 85
COTTON—Middling.....	18 1/2 @ 19	14 1/2 @ 14 1/2
HOPS—Crop of 1873.....	40 @ 53	30 @ 50
FEATHERS—Live Geese.....	60 @ 85	60 @ 80
SEED—Clover.....	10 1/2 @ 10 1/2	8 1/2 @ 9
Timothy, 10 bushel.....	2 15 @ 3 00	2 75 @ 2 90
Flax, 10 bushel.....	2 15 @ 3 25	1 00 @ 1 50
Straw—Red & Green.....	27 @ 30	25 @ 27
MOLASSES, Cuba, 1 gal.....	60 @ 80	70 @ 82 1/2
New Orleans, 1 gal.....	19 1/2 @ 24 1/2	19 @ 23 1/2
COFFEE—Rio (Gold).....	7 @ 15	5 1/2 @ 11
TORRADO, Kentucky, &c., 1 lb.....	40 @ 62 1/2	35 @ 63
Seed Lent, 100 lbs.....	30 @ 50	27 @ 48
Wool—Domestic, 1 lb.....	18 @ 34	16 @ 32
Domestic, pulled, 1 lb.....	7 1/2 @ 7 1/2	6 1/2 @ 7
CALIFORNIA, 1 lb.....	37 00 @ 38 00	34 00 @ 36 00
TALLOW, 1 lb.....	16 75 @ 17 00	14 75 @ 15 00
OIL—Coke, 1 ton.....	— @ 11 75	13 50 @ 15 00
PORK—Mess, 1 barrel.....	— @ 11 75	13 50 @ 15 00
Prime, 1 barrel.....	— @ 11 75	13 50 @ 15 00
BEER—Main, 1 barrel.....	8 @ 8 1/2	6 1/2 @ 7 1/2
LARD, in tins & barrels.....	25 @ 40	23 @ 45
BUTTER—State, Dew.....	16 @ 28	16 @ 32
Western, 1 lb.....	5 @ 14 1/2	3 @ 13 1/2
CHEESE.....	1 15 @ 3 00	1 50 @ 2 60
BRANS—Canada, free, 1 bu.....	1 15 @ 1 19	1 20 @ 1 25
PEAS—Canada, free, 1 bu.....	24 @ 28	25 @ 29
EGGS—Fresh, 1 dozen.....	16 @ 20	10 @ 18
POULTRY—Fowls.....	15 @ 22	11 @ 18
Turkeys—100 lbs.....	1 15 @ 3 00	1 50 @ 3 00
Geese, 1 pair.....	65 @ 1 25	50 @ 1 00
Ducks, 1 pair.....	1 25 @ 2 25	40 @ 65
Pigeons, 1 doz.....	40 @ 80	40 @ 80
Woodcock, 1 pair.....	70 @ 75	50 @ 90
Partridges, 1 pair.....	65 @ 75	50 @ 65
Grouse, trapped, 1 pair.....	15 @ 23	8 @ 15
HARES, 1 pair.....	1 25 @ 2 25	1 50 @ 2 50
VENISON, 1 lb.....	1 25 @ 2 25	1 50 @ 2 50
QUAIL, 1 doz.....	4 00 @ 4 00	4 00 @ 7 00
TURKEYS, 100 lbs.....	2 50 @ 5 00	3 00 @ 5 00
CABBAGES—100 lbs.....	1 50 @ 2 50	1 25 @ 2 50
ONIONS—100 lbs.....	3 00 @ 3 50	3 00 @ 4 00
POTATOES—100 lbs.....	— @ 14	— @ 12
SWEET POTATOES—100 lbs.....	2 00 @ 4 00	2 00 @ 3 75
CARROTS—100 bunches.....	4 00 @ 10 00	— @ 10 00
BROOM-CORN.....	4 50 @ 9 00	5 00 @ 10 00
APPLES—1 barrel.....	2 00 @ 11 00	3 00 @ 10 00
PLUMS, 1 barrel.....	4 @ 12	9 @ 10
CRANBERRIES—100 lbs.....	— @ 5 00	10 @ 10
PEARS, 100 lbs.....	— @ 1 10	1 50 @ 1 50
GRAPES, 100 lbs.....	— @ 1 10	81 @ 1 25
QUINCES, 100 lbs.....	— @ 5 00	10 @ 10
BERRIES, 100 lbs.....	— @ 1 10	1 50 @ 1 50
ELDERBERRY, 1 doz.....	— @ 1 10	81 @ 1 25
LOG-PLANTS, 1 doz.....	— @ 5 00	10 @ 10
TOMATOES, 1 bushel.....	60 @ 75	1 00 @ 1 25
GREEN PEAS, 1 bushel.....	1 60 @ 1 80	1 25 @ 1 60
GREEN-CORN, 100 lbs.....	1 00 @ 1 50	75 @ 1 00
LIMA BEANS, 1 bushel.....	2 25 @ 2 50	1 75 @ 2 00
MAPLE SYRUP, 1 gal.....	1 00 @ 1 35	— @ 1 00
CIDER, new, 1 gallon.....	20 @ 22	15 @ 13
MILK, 40-quart can.....	1 50 @ 3 00	1 00 @ 1 40
HONEY, in glass boxes.....	— @ 20	20 @ 33

Gold has fallen to 106 1/2—closing November 13th at 108 1/2 as against 108 1/2 on October 13th. The pressure in the money market has been very severe throughout the month, and this condition of affairs told most unfavorably on the volume of business and the course of values in the commercial line. Toward the close the city banks reported a very marked improvement in their reserves of legal tender notes and specie, which tended to the restoration of confidence. The cash resources of private lenders were also reported as much

stronger. As the result of this gratifying change the money market has been lately working more favorably for borrowers, and the recent business negotiations have been freer from embarrassment because of the more liberal supplies of money available to responsible houses and strictly prime stock collateral or the best grades of mercantile notes. Consequently, though much distress is yet looked for, it is believed by most thoughtful people that we have seen the worst of the financial and commercial depression, and that henceforward we may reasonably anticipate an improvement, sure, even if slow, in its progress. In connection with the business disturbances of the month it is most satisfactory to us to be enabled to point, as we do with unfeigned pride, to the remarkably substantial prosperity of the producing interests as a whole; the wonderful magnitude of the produce trade, both on home and on foreign account, which in the export line has been beyond precedent, and which through its vigor and solvent position, despite all the extraordinarily adverse influences, has been the mainstay of the commercial interests of the country, protecting us all from consequences far more serious than even the worst that we have thus far experienced, or even the gloomiest view of the present outlook of affairs can authorize any apprehension of. The Breadstuff markets have been quite active, though, of course, on a lower range of prices, with, we are pleased to have to report, an upward tendency at the close. The export business in Flour, Wheat, and Corn has been very extensive, though checked to some extent by the scarcity of freight room and the high rates claimed by ship-owners. Cotton has declined materially, but closed stronger on a brisk trade, in good part for shipment. Provisions, Hops, Tobacco, and Seeds have been in comparatively moderate demand, at reduced figures. The Wool market has been unusually quiet, with prices quoted much lower. Manufacturers are not disposed to purchase freely, and most holders are reluctant to sell unless on a cash basis. The offerings of stock are more liberal at the closing quotations.

New York Live-Stock Markets.

WEEK ENDING	Bees.	Cows.	Calves.	Sheep.	Swine.	Total.
October 20.....	8,604	74	1,744	28,872	43,767	83,661
October 27.....	8,107	81	1,523	33,649	41,986	85,366
November 3.....	9,437	9	2,306	29,791	41,257	85,981
November 10.....	10,391	51	1,392	29,356	38,557	89,544
Total for 4 Weeks.....	35,639	266	6,867	121,588	188,567	333,957
do. for prev. 4 Weeks.....	37,401	322	10,735	136,513	193,400	294,175

Average per Week..... Bees, Cows, Calves, Sheep, Swine.
do. do. last Month..... 9,437 73 1,716 30,807 47,142
do. do. prev. Month..... 10,053 102 2,467 29,148 39,520

Bees.—The course of the market for the past month has been steadily downwards, and now, with prices lower than they have been since 1864, no one can hazard a guess as to whether bottom has been reached or not. As usual, second and third class cattle have suffered the greatest decline, and although the supply has fallen off the pressure to sell has been met with a disinclination to buy, and extra steers are now one cent a pound below the prices of last month. Fat steers were sold at the close of the market last week at 10 1/2 c. to dress 57 lbs. to the cwt.; fair native steers to dress 55 lbs. sold at 8 1/2 c. @ 8 1/2 c., and Texans to dress 54 lbs. brought 4 1/2 c. @ 8 c.

Prices for the past four weeks were:
WEEK ENDING..... Range..... Large Sales..... Aver.
October 20..... 5 @ 12 1/2 c. 9 @ 10 c. 9 1/2 c.
October 27..... 5 @ 12 1/2 c. 9 @ 10 1/2 c. 9 1/2 c.
November 3..... 5 @ 12 1/2 c. 9 @ 10 c. 9 1/2 c.
November 10..... 5 @ 12 c. 8 1/2 @ 9 c. 8 1/2 c.

Milk Cows.—The market for cows has been quiet, with no demand beyond what has been met by the light receipts. Prices remain the same, and sales have been between the extremes of \$35 @ \$75 for common to choice. **Calves.**—The demand for grass calves has been active, and prices have advanced. Closing, however, at about last month's quotations—viz., \$5 @ \$8 per head. Veals have been quiet, with sales, at 7 c. @ 10 c. 1/2 lb., closing at nominal rates with no demand. **Sheep and Lambs.**—Sheep have been depressed with a regular falling off in prices, and last week many car-loads went over unsold. The quotations at the close were 3 1/2 c. @ 5 1/2 c. 1/2 lb. for sheep and 5 1/2 c. @ 7 1/2 c. for lambs. The market for lambs is more favorable, and a fair demand existed at the close. **Swine.**—Hogs have further declined, and the market closes heavy. Prices are down to 3 1/2 c. @ 4 1/2 c. 1/2 lb. for live hogs. Michigan av. 27 lbs. sold at 4 c. and Indiana av. 178 lbs. at 4 1/2 c. Dressed hogs are dull, at 4 1/2 c. @ 5 1/2 c.; market pigs sell at 6 c. @ 6 1/2 c.

Rheumatism in a Horse.—"J. A. B."

Ithaca, N. Y. Where there is stiffness in the limbs without heat in the feet rheumatism and not founder may be taken as the cause. Apply cold water cloths to the legs continually for 24 hours, and give 25 drops of tincture of acouite every 4 hours six times. Feed soft food and the next day give 30 drops of sulphuric acid in the water the horse drinks. When improving give gentle exercise.



containing a great variety of items, including many good hints and suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Remitting Money:—Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd Company, Post-Office Money Orders** for \$50 or less, are cheap and safe also. When these are not obtainable, register letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and take his receipt for it. Money sent in the above three methods is safe against loss.

Postage: On American Agriculturist, 12 cents a year, and on *Hearth and Home*, 20 cents a year, in advance. Double rates if not paid in advance at the office where the papers are received. For subscribers in British America, the postage, as above, must be sent to this office, with the subscription, for prepayment here. Also 20 cents for delivery of *Hearth and Home* and 12 cents for delivery of *American Agriculturist* in New York City.

Bound Copies of Volume Thirty-one are now ready. Price, \$2, at our office; or \$2.50 each, if sent by mail. Any of the last sixteen volumes (16 to 31) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or a small club may be increased to a larger one; thus: a person having sent 10 subscribers and \$12, may afterward send 10 more subscribers with only \$3; making a club of 20 at \$1 each; and so of the other club rates.

The American Agriculturist in German.

If any of the readers of the *American Agriculturist* have German friends, or neighbors, or workmen, will they kindly inform such persons that this paper is also printed in German? The same illustrations and the more important articles are contained in the German edition, besides a Special German Department by Hon. Frederick Münch, of Missouri, and it is furnished at the same rates, single and club, as the English edition.

New Things.—Every season flowers, fruits, vegetables, etc., claiming to be new and of superior excellence, are sent to us with a request that we shall bring them into notice. As a case in point we have at hand two potatoes said to be new varieties, with the request that we describe them in "the next number." It is well to state here our position on such matters. We prefer to speak of only such things as we have tried. The members of our editorial staff have farms in different parts of the country where all farm crops can be tested, and one has a large garden mainly devoted to the trial of novelties. We are thus able to give a fair trial to all new things, whether grains, grasses, fruits, flowers, or vegetables. Those who have really good novelties are desirous to submit them to trial, and our commendations are largely the results of actual test. We sometimes give descriptions of things that we have not grown ourselves, but in these cases the authority upon which the statements are made is always given, and there the responsibility rests. Those who bring or send us new things, who are personally unknown to us, must give us satisfactory proof that their representations are true, else we can not publish them. It is very natural that one who raises a new strawberry, a new potato, or other new seedling, should look upon it with partiality. Moreover, novelties rarely do as well elsewhere as in the grounds where they originated. Hence, while it is our desire to keep our readers advised of all promising new things, it is necessary that we should exercise caution in giving them publicity. Take the potato, for instance, we might almost fill a paper in describing the new ones brought to our notice this fall, but not one of these will be heard of five years hence. Bring on your novelties, gentlemen, but when we have not an opportunity to test them ourselves, we shall require abundant proof that they are not only new, but valuable.

See Premium List on page 460.

Once More we close a volume of the *Agriculturist*. Our space is too crowded for anything like a valedictory. The times are dull but not bad, and the prospect growing more hopeful daily. We speak to our readers every month, and on the last month in the year can afford to keep silence in the presence of the very eloquent remarks of the publishers upon another page.—Ed.

Farms for Premiums.—The publishers in another place make a most liberal offer to those who, during the winter months, wish to employ their leisure time in securing subscribers for the *American Agriculturist* and *HEARTH AND HOME*, and we commend these special firm premiums to the notice of our readers. It will not be at all difficult for any one with ordinary energy and perseverance to secure one of these farms, and thus lay the foundation of a future competence, if not of a fortune. We expect to see a rush for these grand farm premiums.

The Thurber Peach.—To prevent further inquiries at this office and of Mr. Berckmans, we are requested by Mr. B. to say that no trees will be offered for sale until the fall of 1874.

Importation of Shetland Ponies.—Mr. J. G. Corey, of Suisun city, California, has recently imported a herd of 31 Shetland ponies, with which he intends to stock a breeding establishment in California. It is quite possible that these diminutive animals may find a place among the varied industries of that state, as they do in their native home.

Tumor on a Horse's Elbow.—"A Subscriber," Brunswick, Ga. There is no way to prevent a horse lying with his forefoot under his shoulders; it is his natural position. But the tumors upon the point of the elbow, which are very often caused by blows, or pressure of the shoe calks, may be prevented by using shoes without calks. To remove the tumors apply night and morning iodine ointment, by which the tumor will be brought to the point of suppuration. When it is soft and the skin tense and it fluctuates under pressure, it may be opened with the point of a sharp penknife and the matter let out. The tumor should then be washed clean frequently, and it will heal without any other help.

Orchard Grass.—"Scott," Powhattan Co., Va. Orchard grass will not thrive on poor land, without some aid from fertilizers. Wood ashes or plaster might help to get a stand of clover upon a poor hillside, but it would be hopeless to try orchard grass in such a place without manure.

Holding up the Milk.—"Reader," New Bern, N. C. We have found the most effective plan to get the milk down when a cow is inclined to withhold it, is to treat the cow gently and give her a pail of bran, slop, or some feed more than ordinarily enticing to her appetite. A handful of salt given to the cow at such a time often helps to bring the milk. The trouble is, doubtless, due to nervousness and irritability on the part of the cow, which must be removed.

Fence Posts.—"Subscriber," Brookfield, Ohio. We have found no fence posts equal to locust or cedar; and next to those chestnut. Battlement is not so durable as chestnut or white oak. Seasoning the posts before setting increases their durability.

Sweet Pickles.—"H. H. S.," Huntingdon Co., Pa. These are made from pears, peaches, plums, apples, and other fruit, as well as from water-melon rind, the fleshy part of ripe cucumbers, etc. The material is cooked in water until soft enough for a straw to pass easily, and when cool placed in a jar with a few cloves stuck in each. To each 7 lbs. fruit take 3 lbs. brown sugar, 1 quart vinegar, 4 oz. cinnamon, and 2 oz. cloves. Boil the vinegar, sugar, and spices together for a few minutes and pour over the fruit. Repeat the boiling for three days in succession and put away for use. Fruit prepared in this way is by some called by the nonsensical and absurd name of "cured fruit."

Fertilizer for Grass.—"W. S. L.," Cross Roads, Pa. As a top-dressing for grass superphosphate generally fails. We have found guano applied as soon as the spring growth commences the most effective fertilizer. Now that guano is becoming scarce, and of variable quality, probably dried blood and fine bone-dust mixed in equal quantities, would be the best substitute. 250 pounds per acre would be sufficient.

Grapes for Missouri.—"J. S. F.," Hannibal, Mo. The Iona, Israella, and Eumelan have not,

as a general thing, succeeded in your State. The answer to the question—"are either of them better than the Delaware?"—will depend upon individual tastes. To the writer's taste, all these are better than the Delaware, as that is to him too sweet, a fault that many will not find. You had better send to Isidor Bush & Son, Bushberg, Mo., for their catalogue, in which the adaptability of varieties to your climate is most concisely given.

Butchers' Offal.—"J. F. B.," Jefferson Co., Ark. Butchers' offal consists of the blood and the intestines or guts. The paunch is used for tripe; the head, feet, liver, heart and lights are all used for various purposes. A good portion of them find their way into the common kinds of sausages.

Cows for Milk and Butter.—"J. P. F.," Salt Lake City. For the dairy there are no breeds of cows superior to the Ayrshire, the Jersey, and the Guernsey (the latter two being also called, though wrongly so, the Alderney). A mixed dairy of Ayrshire and Jersey is doubtless the best for quantity and quality.

Western Penn. Poultry Society.—The Secretary writes us that the Third Annual Exhibition of this society will be held at Pittsburgh January 6th to 10th inclusive, and not on January 14th to 18th, as before announced.

North American Bee-Keepers' Society.—The next annual session of this society will be held at Louisville, Ky., commencing the first Wednesday in December and holding two or three days. Fourteen States, besides Canada and one or more territories, have been represented at the former sessions, and an interesting meeting is anticipated at the coming one.

Grade Shorthorns for the Dairy.—"C. A. A.," Chillicothe, Mo. If a good class of grade Shorthorns are crossed with a Jersey or Ayrshire bull very satisfactory dairy cattle are often produced. One of the best dairy cows in the country is "Old Creamer," a cross of Ayrshire and Shorthorn.

Chinese Wheat.—"L. E.," Will Co., Ill. The sample of seed sent called "Chinese wheat," is no wheat at all, but a species of *Setaria* allied to Hungarian grass or millet. The grass would probably make a good forage for stock, but as a grain for making flour it will be found of no value whatever.

A Cure for Cribbing.—"W. W.," Stark Co., Ohio. In the *Agriculturist* for October, 1872, we gave an engraving of a muzzle for a cribbing horse which we have found an effective cure, as have many of our readers who have taken the pains to inform us of the result of its use. We know of nothing better. The muzzle is not patented, being an original device of one of the editors of the *Agriculturist*.

A Suet Butter Manufactory.—"A. R. F.," Kansas City, Mo. What would be the cost of erecting a factory to manufacture a ton of beef suet into an imitation of butter we can not say with certainty. The process is patented, and probably some of the machines may be. At a rough estimate we should say, however, that outside of any costs for patents, the requisite machinery should not cost over \$5,000, including steam engine, building exclusive. It should be remembered, however, that the article produced is not butter, but simply colored suet oil flavored with milk or plain, as the case may be, and whoever sells such stuff as butter is open to the charge of obtaining money under false pretenses. If offered in New York it is the duty of the Board of Health to seize it as an adulterated or sophisticated article of food.

Anti-balling Pads for Horses.—"J. B. S.," Napaack, N. Y. We can not give the address of the maker of the rubber foot-pad for the prevention of balling snow in the horses' feet. The Goodenough shoe will entirely prevent this and also prevent the feet slipping upon snowy roads. We would suggest the use of these shoes instead of the pad, as it would be utilizing the natural properties of the horses' feet instead of artificial and secondary helps.

Salt Water for Irrigation.—"W. P. I.," Portsmouth, N. H. Salt water from the sea will not answer for irrigating a meadow. If the water is taken from a tidal river and can be procured when the tide is low and the water is comparatively fresh, an occasional flooding would possibly be beneficial. The experiment would be of such doubtful success that we should not advise it to be made except on a small scale.

See Premium List on page 469.

SUNDRY HUMBUGS.—Letters of inquiry continue to come in relation to the "Union Furnishing Company" of Chicago. In last month's notes we alluded to the concern without mentioning names intending to ask our representative in Chicago to investigate the matter. Soon after the November number went to press we received through the courtesy of the editor of the *Western Rural*, advance slips of that paper for Oct. 25th. Being upon the spot the *Western Rural* looked after the Union Furnishing Co. and does not hesitate to denounce the whole affair in unmeasured terms. The very fact of selling tickets all over the country at 25 cents each, which entitle buyers to purchase goods at a low rate to be delivered at a future date, is suspicious upon the face of it. It is safe to avoid all companies who employ unusual and unnecessary machinery to do business which may be transacted in a simple and open way. . . . Among the curiosities of humbuggery is the

LINCOLN LIBRARY SCHEME.

A grand "Gift Concert" is announced to take place at Newark, N. J., at which \$225,000 in cash is to be distributed. The circular is in the usual flaming style of such affairs, but singularly enough it is dated at Atchison, Kansas, and the tickets are beautiful in silver and green. We can hardly think it possible that the people of Newark need to go into the gift concert humbug in order to raise means for a library, or that they would fix upon Atchison, Kansas, as their Western agency. A correspondent at Eureka, Cal., informs us that California is flooded with circulars of the Lincoln Library affair. Our advice is to let this and all other lottery schemes severely alone. . . . A correspondent calls our attention to the fact that Harpers Weekly of November 8th gives a full-page illustration of the drawing of the Kentucky Lottery. We were as much surprised to see it there as he was. Even the high reputation of the Harpers will not make lotteries respectable. We will not say what effect of this semi-indorsement of a lottery scheme may have upon the reputation of the Harpers.

A SWINDLING SEEDSMAN AND FLORIST.

Many dealers in Europe and in this country have been victimized by W. H. Lyman, of Leverett, Mass. One of our seed-dealers who returned home not long ago informed us that at almost every establishment he visited in Europe inquiries were made about Lyman. The *Amherst Record* of Oct. 15th gives a very full account of this swindler's operations. He left Leverett in a hurry—tar and feathers being talked of—and took passage for Chicago with a "lady" who was not his wife. Our Chicago friends should be on their guard against this chap, whose operations are not confined to seeds and plants, but who has a weakness for purchasing steam-engines, printing presses and material, or anything else he can get upon short credit and turn into cash.

CHEAP BURNING OILS.

We repeat the caution not to touch them. Attractive circulars are going about offering "rights" to make "French," "Sunlight," and other burning oils. We have seen the directions for making several of these, and they are dangerous in the highest degree. No compound containing benzine, gasoline, or any of the light petroleum products is safe, and these rascals know it. As you value your life and safety and those of your family, go to bed at dark rather than be tempted to use any of these dangerous mixtures.

MONIES

to make this, that, and the other thing which shall put the vender thereof "on the high road to wealth," are freely offered. There may be some of these recipes thus offered that are worth something, but we have examined hundreds and have never yet seen one worth having. If the articles for which recipes are sold are so valuable, and meet with such a ready and profitable sale that hundreds are, as they represent, making money with them, why do not these fellows make the articles and get rich instead of selling their secret for a dollar?

"MEDICAL" LITERATURE

has been rather tame of late, but here we have rich reading in "Mrs. M. G. Brown's Metaphysical Pamphlet. A Synopsis of Metaphysics. Cause, Cure, and Prevention of Disease, Life Lengthened, Disease Kept at Bay." A stranger farrago was never printed, in which quotations from Scripture and Mrs. Brown's medicine are mingled in a most remarkable manner. Sacred things are handled in a manner so trivial as to verge close upon blasphemy. The burden of the whole story is—buy my stuff and live, or neglect it and die.

THE QUACK MEDICINE BUSINESS

Is such a thorough fraud from beginning to end that we wonder that it should be almost as successful now as it was fifty years ago. We have kept a very close ran of these things for some forty years. One of these quack affairs runs but a short time and falls out of existence. That portion of the community who purchase such stuff

are constantly looking for something new. Twenty years ago Townsend's Carsaparilla was the popular thing. Who hears of it now? Where is the "Matchless Sanative" that was sure to cure consumption if taken in drop doses? The children of to-day do not cry for "Sherman's Worm Lozenges" as they did a quarter of a century ago, and the stuff that is now ruining the health of thousands and making rich a few will in ten years be heard of no more. Some of these makers have several names under which they put out several different "medicines," or at least stuff with several bottles and labels. In December of last year we gave an account of the way in which these quack medicines were made. This was written from a general knowledge of the subject and a long acquaintance of the ignorant fellows who deal in such compounds. We have now a communication from a correspondent who has been so situated that he had an inside view of some of the quack medicine establishments, who writes:

"Few have any conception of the magnitude of the patent medicine business. One 'doctor' (?) who runs a variety of medicines—all the same article, by the way, but sold under different names—has over twenty thousand agents employed in vending his beastly preparation. The profit to the manufacturer is immense, as none of it costs more than twelve cents for a bottle retailed at one dollar. One half of this sum goes for bottle, stamp, and label, so that actually the liquid costs about six cents; and for this deluded mortals pay one dollar, and imagine they get their money's worth.

"The principal ingredients in most of these mixtures are *aloes*, *mollasses*, and *water*, with some sort of acid to prevent them from fermenting and becoming sour. One dealer uses *muratic acid*, which, as is well known, is a dangerous poison, and *aloes* is certain to produce that distressing complaint, piles.

"The *modus operandi* of starting this business is to purchase lists of names from swindlers who make a regular business of collecting them, and who sell the use of them for about \$10 per thousand. Circulars are then sent to such addresses, offering an agency for the great panacea. Great inducements are offered. People are assured they can easily make from ten to twelve dollars per day. Everything is rose-colored. The plain fact is agents do not average more than three to four dollars per year, and that with much difficulty and trouble.

"The originator of this system of selling medicine is A. J. White, of 319 Pearl street. Of course he is a 'doctor,' all such are. He has run the same compound under a multitude of names: 'Vinegar of Iridin,' 'Father Pettigrew's Medicine,' 'Curative Syrup,' and others, and under the names of H. M. White, W. H. Comstock, and Lyman Brown.

"A more lucky man is 'Dr.' E. P. Huyler, of 77 Amity street, formerly of 737 Broadway (a hot-bed of such schemers) and 212 Wooster street. He followed a very peculiar course of study to acquire his title. He sold stoves and sewing machines, baked bread, took photographs, peddled table-sauces, traveled with a 'fakir' show, and finally became an 'M.D.' He has prospered, drives fast horses, patronizes pigeon-shooting matches, and wears a small fortune in the way of diamonds. The guiding spirit of this concern is Madam Huyler (formerly Madam Jumel of Mammarial Balm fame). She manages the whole business, and is the authoress of those beautiful, very beautiful, stories that grace their numerous pamphlets, and which are remarkable for their absurd improbability and bad grammar. Their 'cure all' is the same as Dr. White's, but flavored differently. It is or was a compound of *aloes*, *cayenne pepper*, *mollasses*, *muratic acid*, *valerian*, and other cheap and nauseous drugs. We could give the recipe as it was in full, but the above is all that is necessary to show what kind of stuff it is. They sell it under the various names of 'Mother Noble's Healing Syrup,' 'Wine of Apocynum,' supposed to be run from 236 and 238 Thompson street, the side basement door of 77 Amity street; 'The Electric Health Restorer,' from same number as the Apocynum; and 'Dr. Clark Johnson's Indian Blood Syrup.' This last is advertised from Jersey City. All letters which come to that address are taken from the post-office by a messenger, carried to 77 Amity street, New York City, and there attended to. The 'Apocynum' is flavored with carbofic acid, and the 'Indian Blood Syrup' with anise. The various enterprises are supposed to be run by 'Abel King, M.D.,' 'Dr. Clark Johnson,' 'Edwin Eastman,' 'Israel Goodspeed,' and others. It is needless to say such persons never existed; they are purely creatures of imagination; only other names for this 'Doctor' Huyler.

"They also publish a book called 'Seven and Nine Years Among the Comanches and Apaches,' giving an account of Edwin Eastman's trials and troubles among the Indians. This is unadulterated fiction, being the joint production of two of Huyler's clerks. Whole pages of it are taken bodily from Catlin's 'History of the North American Indians.'

"Other infallible remedies of this kidney are the

'Parisian Flesh Producer,' of the Manhattan Medical Co., run by the Elias brothers, of sawdust, counterfeit money, and bogus gift-enterprise notoriety; 'Seven Barks,' 'Golden Seal,' 'Mother Rachel's Remedies,' 'Aunt Lee's Syrup,' and so on *ad nauseam*.

"All of these are launched with some very pretty and pious, but very improbable tale. If one were to believe the pamphlets, they will cure every disease that flesh is heir to; but all sensible people will concur in saying they perform the most cures when left strictly alone."

It would seem that "hard times" prevent ready collections in the quack medicine as well as in other kinds of business, and the delinquent agents of Huyler are receiving letters apparently from a law firm, the name of which does not appear in the directory. It deserves to be recorded as a most singular coincidence that the name of the first member of this firm happens to be the middle name of E. P. Huyler, and that of the other is the name of the madam's former husband. Singular, isn't it?

Non-Poisonous Pipe.—"M. J. C., Washington Co., Pa. There is no danger of poisoning in the use of an iron pipe. The rust of iron is not hurtful, although of an unpleasant flavor. When a constant stream of water passes through an iron pipe, although a coating of rust gathers upon the inside of the pipe the water dissolves so little of it that no taste or smell is perceived; it is only when the water remains stationary for some time that a taste is communicated to it. We prefer an iron pipe in a submerged well to any other, and by taking the precaution to pump fresh water each time no unpleasant taste will be perceived. Tin-lined lead pipe is safe so long as it remains perfect, but uncoated lead pipe is not safe to use for drinking water.

Rat-Proof Corn-Crib.—"A. H. C., Fort Scott, Kansas, sends a plan for making rat-proof corn-cribs, as follows: he sets the crib upon posts of 4x1 timber 3 feet above the ground and covers the posts with sheet-iron or places stove-pipe around them. He has never yet known anything to climb up such posts.

Duchess Heifers.—"J. C. S., Union Co., Pa. We are at a loss to know what a drover would call Duchess heifers. If they are grades of the Duchess blood (Short-horns), which is extremely doubtful, they would probably be promising as milkers and breeders. It would be better, however, to purchase cows on their merits and not pay anything extra for names.

Openings for Immigrants.—"G. W., Dublin, Ireland. There is practically unlimited room in the United States for skillful farm laborers and occasional openings for farm managers entirely competent for such a position. The demands for such men are steady, for the reason that after two or three years spent in working for others, our laborers of all grades become their own employers, either renting or purchasing farms. Those who are competent for higher positions should come here prepared to take up whatever may offer, even though it be "the lowest room." If capable they will soon be invited to "come up higher."

Making Drain Tile.—"T. W., Flushing, L. I. It would hardly pay for farmers to purchase drain tile machines and make their own tile. One business is as much as a man can do justice to, and if there is one business more than another that needs exclusive attention it is farming. Drain tile are sold very cheaply by the manufacturers.

Hens Laying while at Roost.—"C. H. T., Lansing, Mich.—Eggs are very frequently dropped while the hens are upon the roosts. The only remedy is to place the roosting poles low and have a soft layer of sawdust or chopped straw beneath the hens. Soft eggs are indicative of an excited condition of the ovary from over feeding, at least when plenty of lime is given. Reduce the feed, and give only oats, and no meat, cooked food, or pepper for a week or two.

Milking Machine.—"J. E., Haldimand county, Canada.—If a really effective and easily-applied milking machine is introduced, it will certainly be a desirable acquisition for dairymen. If you think you have an invention that will fulfill all the requirements, you would do well to send a sketch and description of it to the Patent Department of the *American Agriculturist*, which will report to you upon its value.

Crushing and Cooking Feed.—"A. P. K., Washington county, Miss.—The Little Giant Corn and Cob Crusher is very serviceable for preparing corn cobs for cooking. It can be procured of Carr & Hobson, 56 Beekman street, New York. The process of steaming food and constructing a steamer was fully de-

scribed with engravings in the *Agriculturist* of January 1873, to which please refer.

See Page 471 for Basket Items.

The Mason & Hamlin Organ Co. did credit to American manufacturers at Vienna. They not only carried off the highest honors from all competitors at the Exposition, but sold a greater number of their organs than the whole number of pianos and organs sold by all other exhibitors put together.

Bed-Bugs.—A "Southern Housekeeper" makes a most pathetic appeal; her house, though a new one, is "swarming" with bed-bugs. These insects, when they get into partitions and other hiding-places, can only be exterminated by systematic and patient warfare. She does not state if the rooms are papered or not. Where paper is badly put on, raised edges offer hiding-places for the bugs, and in rooms finished by plastering or hard finish cracks are often left that harbor the pests. A minute examination of each room should be made. Stop every crevice, if no wider than a knife-blade, with plaster of Paris mixed with water to the consistency of thick cream. Mix only a little at a time, as it soon "sets." Every crevice in the walls and ceiling being filled, attention must be given to the floor, and all cracks filled either by plaster or by caulking with oakum or cotton driven in firm and hard. If the room is papered it may be necessary to strip off the old paper and put on new, or loose edges may be pasted down. In either case mix enough of carbofic acid with the paste to have it smell strongly of the acid. Thorough work in stopping in one way or another all hiding-places is the only course. Bedsteads may be scalded and the joints treated to a strong solution of carbofic acid—all that water will dissolve—or a solution of an ounce of corrosive sublimate to a pint each of alcohol and water. Do not believe that the bugs can be starved out or frozen out. There is an authentic experiment recorded in which the insects have been kept in a dormant state for thirteen years, and at the end of that time were discouragingly lively. We know by sad experience that energetic measures persistently followed up will rid a house of these intruders.

The Adulteration of Tea.—A Mr. Allen read at the meeting of the British Association an account of his examination of tea. A great deal of the cheap tea was found to be leaves that had already been "drawn," and then dried again and made up with gum. The manner of detecting this requires too much chemical manipulation to be done by every one. The common adulterations of green tea are put on as, what is called in the trade, "facing." Inferior teas are coated with magnesia, Prussian blue, indigo, etc. These may be detected in a rough way by putting warm water upon the tea, pouring the liquid off from the leaves, and allowing it to remain quiet, when these matters, if present, will settle at the bottom.

Cattle upon the Roads.—The grand jury of Burlington Co., N. J., recently very sensibly made the following presentment, which we recommend to the consideration of all concerned for their imitation, viz: "We do present the practice of letting cattle run at large upon the highways as a nuisance which should be abated by all proper remedies." The court upon the presentment being made expressed full concurrence therewith as an eminently proper one.

Value of Corn and Oil-Cake.—"J. D., Blue Earth Co., Minn. On page 178 (May number) of the present volume of the *Agriculturist* we gave a list of the theoretical values of oil-cake and corn-meal, by which, on the whole, these two articles would seem to be of about equal value; but as feed for growing animals the oil-cake is shown to be the more valuable, as it contains the most albumen or flesh-forming matter. After all, the theory is only to be taken as a premonitory guide for experiment practically, as there are so many concurrent circumstances which may affect the result in feeding such concentrated articles as these. Ruminating animals need bulky food, and oil-cake or corn-meal can only be fed in small quantities.

Who Owns the Manure.—"A. W., Essex Co., Mass. Generally the stock of manure in the barn-yard goes with the farm, by virtue of custom, upon possession being transferred. But in case a tenant without a lease uses extra exertions to make a large quantity of manure for use upon the farm, expecting to have the benefit of it, and is suddenly notified to leave, the manure belongs of right to the person who collected it, and he should remove it along with his other personal property. No person should rent or hire land without having a lease which defines all his rights, for the prevention of disputes of this character.

Dr. Cones' Key to North American Birds.—The full title of this work, which is descriptive of its contents, reads: "Key to North American Birds; containing a concise account of every species of living and fossil bird at present known, from the continent north of the Mexican and United States boundary. Illustrated by 6 steel plates, and upwards of 250 woodcuts. By Elliot Cones, Assistant Surgeon, United States Army. Salem Naturalists' Agency." Dr. Cones is well known as one of our most industrious and trustworthy naturalists, and he has given what has long been needed, a systematic account of our birds in accordance with the present state of the science. It is a handsome 4to volume of 361 pages, on heavy paper, and in excellent mechanical appearance generally. The first 67 pages are devoted to a discussion of the anatomy of birds and similar matters, while the remainder is occupied with brief descriptions of classes, order, genera, and species; and abundantly illustrated, especially with drawings of those parts necessary for the identification of genera and species. We are glad to notice that the author has provided a very full index—a matter which is too often neglected in our works on natural history. Salem is rapidly becoming an important center for the publication and distribution of works upon natural science. This work reflects great credit upon all concerned in its production; and though its price (\$7) may seem high, it is really moderate for a work that has cost so much labor, and for which the sale must necessarily be limited. It may be ordered from the Naturalists' Agency, or from Orange Judd Company.

For other Basket Matter see page 471.

Henslow's Botanical Charts.

When we saw, many years ago, an imported set of Henslow's botanical charts, published under the direction of the English educational authorities, we wished that something of this kind could be accessible to our teachers and students of botany. Messrs. D. Appleton & Co. have done a good service by publishing these charts in a modified form, as an auxiliary to Miss Eliza Younman's school books of botany. The charts are six in number, each about 34 feet long by 3 feet wide, and mounted with a cloth lining upon rollers, ready for hanging upon the wall of the school-room or study. These charts contain illustrations of about twenty-five of the principal natural orders into which plants are grouped; one or more characteristic species in each order being represented with magnified dissections, to show the points of structure upon which classification is based. In several cases where the plants used in the English charts are not to be found in this country, American representatives have been chosen. Although these charts do not present so many plants as the original edition, the figures are less crowded, and are better suited for study on this account. A book describing each object accompanies the charts. Aside from the insight that these charts give into the structure of the plants represented, they are of great use in teaching the student what to observe. Beginners in botany are very apt to overlook minute, yet important characters, because they do not know how to observe them. By following the dissections shown in these charts, and finding the parts in the plants themselves, one can soon learn to observe with accuracy. A set of these charts would be a most acceptable present to any school or college where botany is taught.

See Premium List on page 469.

Bliss & Sons' Potato Prizes.

Last spring we mentioned the prizes offered by B. K. Bliss & Sons for the largest yield from one pound of Early Vermont or Compton's Surprise potatoes. The conditions were that the potatoes should be bought of them, treated with ordinary farm culture, and that the results should be accompanied with full particulars and sworn to. Five hundred dollars were offered in prizes of \$100, \$75, \$50, and \$25, for the first, second, third, and fourth heaviest yield of each of the two varieties. The number of competitors was very large, and we can at present only give the names of the successful ones.

EARLY VERMONT.

1st Prize, \$100.—J. I. Salter, St. Cloud, Minn. 607 lbs.
2d Prize, \$75.—H. C. Pearson, Pitcairn, N. Y. 437 lbs.
3d Prize, \$50.—J. L. Perkins, Little Sioux, Iowa. 393½ lbs.
4th Prize, \$25.—Thos. J. McLeod, Black Brook, N. Y. 380 lbs.

COMPTON'S SURPRISE.

1st Prize, \$100.—Abenedgo Robinson, So. New Market, N. H. 511¼ lbs.
2d Prize, \$75.—H. C. Pearson, Pitcairn, N. Y. 450 lbs.

3d Prize, \$50.—J. I. Salter, St. Cloud, Minn. 394 lbs.
4th Prize, \$25.—Frank A. Smith, Stone Church, Pa. 386 lbs.

Some who did not comply with the conditions of the offer had very large yields. We presume that Messrs. Bliss & Sons will publish a fuller account of this interesting trial than we are able to give at the present time.

Bee Notes.—Advice to Beginners

BY M. QUINBY, ST. JOHNSVILLE, N. Y.

More people are asking at the present time how to winter bees than ever before. In 1853 "The Mysteries of Bee-keeping" was first published. The best process then known to the writer was there detailed. A warm cellar or outhouse, made warm, was considered the best place. I have wintered in such a place with a loss of but two per cent, and have known small lots at that time to pass the winter with a loss of less than ten per cent, even when left on their summer stands. But for the past two winters it was very rare to find ten per cent saved of those out of doors, and very many of those housed suffered equally. There was this difference: Of those out of doors scarcely any escaped; while those housed, especially when kept warm enough, were the only ones that were well wintered.

It is desirable to ascertain, if possible, the causes that produce these results. Many attribute it to a dysentery caused by the quality of honey, and assert that the prairie flowers of the West furnish something very different from what was obtained twenty years ago; forgetting that the Eastern States do not furnish it now, and the result there is about the same. Others suppose that the young bees winter best, and that from some cause the bees early stop rearing brood, and by the beginning of winter have no bees less than several months old—three or four at least—and by the next April these are dying of old age, or, if not dead, worthless. While admitting that young bees are most valuable, this solution of the difficulty does not apply, because they failed in some cases to rear young bees late, just the same, years ago. The idea that it is in the quality of the honey that makes the trouble is insisted on by another, from the fact that he has substituted sugar syrup for winter food, and has lost no bees when so fed. As none of these reasons are wholly satisfactory, some have inquired further: What condition has been present the past two years that we have not had before in forty years? But few attribute it to the cold weather. I must do so. All know that a good hive of bees with a proper quantity of honey well distributed will stand any degree of cold for a time, as has been proved many times. Yet the cold of the last two winters has been different, not only in severity, but in continuing until late in spring. A fortnight of such weather, with a few warm days between the spells for them to revive, and they come out all right. That dysentery is produced by cold is shown by their never having it in warm weather. That syrup of sugar does not prevent it in such weather was proved in many cases the past winter where the combs were filled with it and nothing else, and were badly soiled before the bees failed.

After strict inquiry, the only places found where bees were wintered successfully was where they had the benefit of artificial heat, unless in a room with numbers sufficient to create heat for themselves. From all these facts we can see the necessity of more artificial warmth than was needed a few years since. Do not take the chance of success out-of-doors. The coming winter may be mild; and it may be the third one of severity. Let us be prepared for any emergency. If we have less than one hundred stocks let them be put in a place where the temperature can be regulated. The more bees in a room the less artificial heat will be needed. If there are only a few stocks put them in a room adjoining one in which there is a fire, either over or under or on one side, or in a cellar under the living room. A room proportioned in size to the number of hives will keep them warmer than a few in a large room. Yet extreme heat must be avoided. A little below or a very little above 50 degrees will do, and this should be uniform if possible.

Another point. If the room has windows they must be darkened—perfectly dark—or the bees will leave the hive and waste. If there is no room to spare for this purpose, and you have but a hive or two, put them in a close box to keep dark; ventilate the box without admitting light to the hive and keep them as quiet as possible. House the first of this month or as soon as we have real winter. Choose a cool day to do it. Be careful not to jar the hives. If several are set close together they are easier kept warm than if scattered. Such as have stores sufficient at the proper time need not be disturbed until spring. Those lacking stores must not be allowed to starve. Material to keep them will cost no more now than if given early. But the care of feeding is increased. When the room is warm they may be fed

enough to last until April—three pounds per month. Syrup made of sugar—coffee crushed—is probably the cheapest feed. If fed when they are cold a bee will not leave the cluster and creep to the top of a dish containing feed, but will come to the bottom if it can obtain it there. There are feeders made on this principle, but patented. If warm enough, the bees may be fed as they need it—by the month or oftener. But such feeding is not recommended as the best way.

The inquiry is often made, "Which is the most profit, extracted or box-honey?" To answer correctly many points require consideration. Three times as much of the one as of the other can usually be obtained—that is, when we can save the expense of making combs. The cost of fixtures to obtain extracted honey and the price it bears in market are important items. When comb is to be used, as in box-honey, it takes many pounds of honey to make one of wax—from ten to twenty. This is all wasted, as far as food is concerned; and prices do not correspond up to this time. It has discouraged many. But it is what might be expected. A reputation has yet to be made for extracted honey, and will be as soon as people know its superiority in taste as well as appearance. So many vile mixtures have been sold as honey that the public taste is perverted; very much like that of the man who boasted of his ability to tell liquors by the taste, but was "stumped" when a glass of water was presented to him. The case is similar with this honey. Most persons not being in the habit of tasting that which is of very superior quality it is not appreciated. *Strained honey*, even when mixed with any foreign ingredient, always has a taste of bee-bread. It is always drained from combs taken from the body of the hive. These always contain bee-bread. To have the honey drain properly it is necessary to mash it fine, and the bee-bread is mixed with it—making it unpleasant to many, and they will give but little for it. *Extracted honey* is associated with it in their minds as something not so agreeable as box honey. When clover honey is extracted and kept pure it is so much clearer, purer, and whiter than anything that people are accustomed to, that they think it must be something else. They "never saw honey look like that." Dairymen have called the Legislature to their aid to prevent watering milk. I think that beekeepers could do the same thing in regard to honey with propriety. If we had a law that every one offering for sale honey containing an ingredient not stored by the bees should so state it or suffer a heavy penalty, beekeepers would be greatly benefited.

Two Valuable Shorthorns.

On our first page will be found engravings of two cows from the late herd of the Hon. Samuel Campbell of New York Mills. These engravings are portraits taken from life on the occasion of the shipment of the cows from New York to their English purchaser, Lord Skelmersdale. The cow with a calf by her side is the first Duchess of Oneida, purchased at this sale for \$30,600. This cow is in her fourth year, and the dam of a heifer now 15 months old, the seventh Duchess of Oneida, which was purchased at the same sale by Mr. Alexander, of Kentucky, for \$19,000. The little calf by her side, now a few weeks old, is valued at \$15,000, although as yet without a name. The other engraving represents Atlantic Gwinne, a three-year-old cow, a member of a family of shorthorns of less repute than the Duchesses, but yet of such a character that \$2,000 was paid for her. The result of the sale was a surprise, not only to the fortunate seller but to the world—stock breeders and farmers more particularly. It is a matter for congratulation to those who possess pure-bred stock that such a high value is set upon it, and we consider that to-day the value of every pure Shorthorn cow and bull especially, and that of pure-bred stock of other descriptions generally, is largely increased in marketable value by the result of this sale. But if the only result should be to call forth a spirit of inquiry and emulation amongst farmers and breeders towards the improvement of their stock, the money paid at the New York Mills sale has been well expended.



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N. B.—A few of the beautiful pictures entitled “MISCHIEF BREWING,” which have been given to so large a number of subscribers, are still in stock, and, *while any remain*, subscribers to the *American Agriculturist* can have their choice between this and the new Chromo “UP FOR REPAIRS;” but the choice must be named at time of subscribing.

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That *Very Valuable Premiums* are offered (see page 460) to those who take the trouble to gather up and forward clubs of subscribers. These Premiums are to **pay** for the time and trouble taken in gathering and forwarding the subscriptions (and *good pay* they are). The subscribers themselves will *each* get the \$5 picture, and new ones coming in now will get the extra number *free*.

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It would be impossible to find a father or mother worthy of the name who does not desire by all the means within his or her reach to make home brighter and happier, and who is not disposed to us far as is possible everything that promises this. Now, the Publishers of the *American Agriculturist* have the best of proof in the testimony of thousands that the households into which this paper has come have been made happier and wiser and better. For many years it has been the aim of all connected with this well known journal to make

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A Household Department with which they are always greatly pleased. The children find amusement and delight in the beautifully illustrated “Boys and Girls’ Columns,” with their pleasant stories, the “Doctor’s” Talks, the Puzzle Box, the Enigmas, Anagrams, and Charades. And we have known many rather old boys and girls to be very much interested in these same columns that are made up for the young folks of the family.

Year after year has this Journal been welcomed into many families, the younger members of which have in the meantime grown to be the strong young men and the active young women, and they still hold on to their old friend the *American Agriculturist*. And now, in addition to all the other inducements to be found in the paper itself—its beauty, value, and cheapness—the Publishers offer an exquisite picture as described elsewhere. Come one and all and join the host of *American Agriculturist* subscribers.

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HEARTH AND HOME will discuss every week such questions of living interest as may at the time seem to demand attention. These questions—whether moral, social, or political—will be invariably treated from an independent standpoint, unbiassed by partisan or sectarian influences.

TOPICS OF THE TIMES.

Under this general heading we will present during the year a most interesting and valuable series of papers from some of the ablest thinkers and writers of the country upon questions of

POLITICAL ECONOMY, FINANCE, LITERATURE, RELIGION, SCIENCE, ART, ETC., ETC.

These papers will be distinguished by clearness, conciseness, perfect candor, and independence, and we take pleasure in commending them in advance as a new and most valuable feature of the paper for the coming year.

Answers to Correspondents.

This is another new and most interesting feature. In it will be included answers to questions from our readers on any subject upon which they may desire to be informed. It will be a very cyclopedia of valuable information, will be accurate and reliable, and will embrace a fund of knowledge not otherwise obtainable without careful and laborious research. We are sure our readers will be delighted with this new department.

THE HOUSEHOLD.

This has long been a popular department of **HEARTH AND HOME**, and it will be better than ever

the coming year. It will be crowded every week with practical information upon subjects of interest to every housekeeper, young or old, and its constant aim will be to make more bright and cheerful and happy every hearth and home to which it may come.

For the Young People.

We are preparing a rich store of good things—the very best that can be found anywhere. Their bill of fare will embrace a large number of the most intensely interesting

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ever published in any paper or magazine. These stories, specially written for this department of **HEARTH AND HOME**, cannot fail to be read with profit and delight by boys and girls of every age from four to four score. Besides, we shall present in this department lively sketches, bits of fun and frolic, beautiful poems, interesting and instructive puzzles, muddles, charades, etc., etc. Then there will be a Question Corner specially for our young friends, in which they will find from week to week answers to questions on any subject upon which they may desire information. This is another new feature, and we know it will be one of great interest and value to our readers young and old. In short, it is our determination to make this department of **HEARTH AND HOME** superior to anything of the kind ever offered to young people. And we are confident they will appreciate our efforts in their behalf.

Literary and Miscellaneous.

We shall give regular weekly notices of new books, telling our readers plainly and frankly just what a book is, whether good, bad, or indifferent. Our announcements of forthcoming books also will be of interest to all book readers.

Then in all other departments of literature we shall give the very best that can be obtained, some of the illustrations giving place to the most interesting Stories, etc.; and our aim will be to present each week so rich a variety of good things as to place **HEARTH AND HOME** above all competitors as a Literary and Family Paper. Subscription price only \$3 a year.

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471 of this Paper.

Dairymen's Association of New York.—The third annual convention of the New York State Dairymen's Association, will be held at Sinclairville, Chautauque Co., N. Y., on the 10th and 11th of this month. Various papers on practical matters connected with dairying will be read, and discussions thereon will follow the reading. The conventions already held have been made very interesting, and the valuable information which has been elicited by the discussions amongst noted dairymen, has been a gratifying feature. The admission to the meetings is 25 cents for each, and the sum of \$1 constitutes the contributor a member, and entitles him to a seat in the convention, the use of the Board of Trade rooms on market days, and various other privileges. A dairymen can hardly afford to deny himself the opportunities here presented to him.

Vermont Dairymen's Association. The fifth winter meeting of this association will be held at Essex Junction, Vt., on the 21st, 22d, and 23d days of January, 1874. This association is composed of practical men, and hitherto its meetings have been of the most interesting character. We understand that all are invited, not only to attend, but to communicate any valuable information upon dairy matters they may be possessed of. There will also be an exhibition of dairy products and implements.

Sales of Land.—The Union Pacific Railroad sold during the month of September 20,331 acres of land at an average price of \$6.27 per acre. The total sales by this company to October 1st, 1873, are 739,748 acres at an average price of \$4.80 per acre.

Ogden Farm Papers.—No. 46.

While in England a short time ago I found that much attention was being given to a subject that should be of interest to more than one class of the readers of the *Agriculturist*—that is, the liability of milk to act as a means for conveying contagious diseases, especially typhoid fever. Numerous cases have recently been investigated in London and elsewhere which have clearly established the alarming fact that, however carefully guarded may be the sanitary arrangements of our own dwellings, we are all of us liable if we use milk from carelessly managed dairies to suffer the effects of typhoid contagion. The cases in point have been so numerous, that in the present discussion of the question the evil effect is undisputed, and the sanitary authorities universally advise the boiling of all purchased milk (a boiling heat destroying the germ of fever). The following recently reported case will serve to show the extent to which the contagion may spread from a single dairy.

A Mr. Jessop, occupying a dairy farm in England, died (of heart disease) while recovering from typhoid fever, and his young son was ill with the same disease. Sufficient reason for the infection was easily found in the soakage of the contents of the privy vault, through the soil, into a well about 18 yards distant. Between the privy and the well was the dairy, which received its supply of water from the latter. For some time previous to the investigation the water was so bad that it was not used for drinking, but it was used for cooking, for washing, and for cleansing and cooling the milk cans. To follow all the details in such a case would be difficult if not impossible. It can not be asserted that Mr. Jessop contracted the fever from using the impure water of the well, which is most likely. It is possible that typhoid germs contained in his excrement, by following the ooze into the well, first caused the infection of the water. But however it may have originated, the infection went from the well to the milk cans, and poisoned the whole supply of milk to such a degree that the

examining physician reported 320 cases of typhoid fever among the persons using it.

In another case where members of a dairyman's family had typhoid fever the disease spread through that portion of the town supplied by him to such a degree that in one physician's practice, out of 18 recent cases of the disease, 15 occurred in persons who had used milk from this dairy.

There is certainly sufficient ground in the circumstances of many American milk dairies for supposing that typhoid fever (which is peculiarly a disease of farm-houses) may be conveyed to persons in even distant towns where the milk is used; and any farmer in whose household a case of fever exists should be exceedingly careful as to the character of the water used in washing the utensils of the dairy and of the thorough cleansing of the hands of all who, having come in contact with the sick, afterward have to do with the milk.

My travels led me for some weeks to the Channel Islands, and I had a better opportunity now than last winter to examine the cows and the dairies of Jersey. One main effect of the more careful investigation was a grave doubt as to the correctness of our notion that the Jersey cow improves on being transplanted to America. The fields that line the embowered lanes of this beautiful island were filled to their fullest capacity with cattle of all ages and of all qualities. They have all the characteristics of the breed as we know it, but many of them were very poor trash, and many gave evidence, in the defective form and small development of the udder, of the ill effect of careless breeding, and of breeding with reference to the fashionable color standard or to mere points of beauty. Others again, while good milkers, showed a less reprehensible disregard of form. But, notwithstanding all this, there were hundreds of cases in which both beauty and quality were combined in a way to eclipse our best efforts. Single animals may be found in America as fine in all respects as any in Jersey, but our very best herds do not show so high an average of both characteristics as do several herds in Jersey. All that we need is to base our future importations on a more careful selection than has hitherto prevailed—and than now prevails. The principal importers cater only to the taste for color and good looks, and they find their profit in buying animals which bring a low price on the island because of their inferior value for the dairy. In the Saturday markets at St. Heliers there were only very ordinary (but generally very pretty) animals; and on the boat coming to Southampton, where there were about thirty cows of almost universally great beauty, there was not one that seemed to be above a very low average in dairy quality. If we are to improve our stock by importation—and we may so improve it—we must select much better animals than those sent out by the regular dealers.

A visit to the island of Guernsey modified my long-entertained opinion of the cattle of that island—which are as distinct from those of Jersey as are the Ayrshires from the Devons. Pretty they are not, as a class, either in form or about the head, but they are unmistakably good farmer's cows. If I were starting a herd to-day with sole reference to butter-making I should use only well-selected Guernseys. They are larger than the Jerseys (which is not necessarily an advantage), they are deep milkers, and

they are a very high-colored race, which is a matter of importance. The prevailing color is a rich fawn with much white. The muzzles are buff, and the eyelids are almost yellow. The horns are usually amber-colored, and under the white hair, wherever it appears, the skin is of a bright orange that is only exceeded by the golden yellow of the inside of the ear. This universally rich color extends to the milk and especially to the butter, which is the yellowest I ever saw. It is not only of a good color, but is also firm in its texture and of fine flavor. Being larger, the cows when they dry off fatten to heavier beef than do those of the sister island, and the steers have the same superiority. The importance of this latter peculiarity may, however, be easily overrated, and one of the last things a farmer should regard in selecting a cow for her value while living is the amount of meat he can make of her when she is dead. A very slight difference in the daily average of produce during eight or ten years would make up for a large difference of profit in fattening for the shambles. Form is a better indication of the tendency to profitable fattening than is size, and the best form for fattening is not the best for milking.

While the Guernseys are perhaps the most promising for the butter dairy, the Jerseys are so much prettier and more taking to the eye,



JERSEY MILK-CAN.

that even a butter-maker, pure and simple, would have a better chance for good prices for his surplus animals for sale among his farmer neighbors if he bred Jerseys than he would with the butcher if he bred Guernseys. My commendation of the latter is to be taken rather as an act of fair play on the part of one who is a firm believer in the Jerseys than as an expression of the opinion that they are as good, all things considered, as a breed for adoption in America. Certainly the best of either breed are better than the ordinary animals of the other, and the best cows to be found in Jersey (as a class) are those which have the coloring, and which approach the size of the Guernseys. The size is an indication of good keep for generations, which has also had a tendency to stimulate the milking capacity. To this extent size is an advantage. Beyond this, as a large animal eats more than a small one, it is doubtful whether it is so in a butter-producing herd.

The dairies of Jersey are usually small, and are not especially well managed. We often found in the best butter for sale in the open market a tendency to "turning," and we were sure of a good article only when we received it directly from some of the larger makers.

One custom prevails which might with advantage be adopted generally. It is, however, unknown even in Guernsey. The milk (in both

islands) is drawn not into pails as with us, but into jug shaped cans, the opening being about four inches in diameter. In Jersey this is covered with a cloth strainer tied on so loosely that it sags down several inches into the neck of the can. In the bottom of this bag there is laid a shell to receive the force of the stream as it is drawn from the teat. The milk flows over the shell and soaks through the cloth. This is certainly the most cleanly manner of milking that could be devised. The wet cloth prevents any foul odor of the stable from reaching the mass of the milk, and any hair or dirt from the udder is at once held back, instead of remaining in the milk until it is carried to the dairy to be strained. The cloths are easily kept clean and aired, and the system is in all respects a simple and commendable one.

The can, of which an illustration is here given, is very strong by reason of its rounded form, and is heavily wired. There is no apparent reason why it is not an improvement on our broad-mouthed pails. If the milking cloth is to be used some such modification would be necessary.

In Guernsey the milk is never skimmed. It stands in large crocks or stone jars similar to the oil jars of Ali Baba, until the cream has all risen and until the milk has become thick. It is then poured into an enormous churn, and churned by hand, with a common up-and-down dasher, until the butter comes, often four hours. The churning is usually done twice a week; but the cream is far from maintaining a good appearance to the end of the time. In some of the older settings in the only dairy which I had an opportunity of examining, the cream was wrinkled like a raisin and covered with mold. The dairy-maid said they did not like to see it quite so far gone as that; but that it would sometimes get moldy, and that it made no difference with the butter. Probably the volume of milk is sufficient to wash it of any impurities; certainly the butter of this dairy gave no evidence of any fault in the process.

There was no opportunity to compare the butter made by this process with that made from cream alone, as it is universal in this island to churn the whole milk. All the butter that I saw was exceptionally good, but this was probably due in great measure to the character of the cows and the excellence of their feed. We had less occasion to examine it here than in Jersey, or we should very likely have found the same variety as there. However good the whole milk process may be, I am satisfied that it might with advantage be supplanted by the deep-can system in use at Ogden Farm.

In Guernsey, as in Jersey, a very "high" system of farming prevails; great use is made of sea-weed as manure, both in the direct application as it is taken from the shore, and in the use of the ashes of that which has been dried and used for fuel; deep plowing—for the parsnip crop—puts the land in an excellent state of tilth; and the considerable population of the towns afford an abundant supply of stable-manure. The result of all this is a degree of fertility that is equaled in America only in the market gardens; and the farmers of these islands find, as we should under similar circumstances, that the garden system of farming is the most profitable.

The lesson which they teach is that "a small farm well tilled" is worth much more than a large one half tilled.

Turning the Yoke.

Our engraving represents a person in a quandary. His oxen have turned their yoke, and he can not understand how those placid-

looking creatures, so innocently chewing their cud, could perform such a trick. But they understand it. It is not the first time they have done it, and they are very well satisfied with their success so far. Oxen are in no wise stupid, and remember their successes and practice upon them. We have owned a yoke of cattle that would turn their yoke upon every opportunity. They had evidently learned the trick during their training, for they went to

work methodically, and the result was a great surprise to us at first. But we studied out the matter and found a simple preventive. The manner in which the yoke is turned is as follows: One ox or both move their hindquarters outwards, at the same time bringing their heads together. One ox (generally the off ox does this) then puts his head under his mate's neck and swings himself quickly around alongside of him on the high side. The off ox is then upon the high side, and the yoke is bottom upwards. When this has been done, the ox which has done the mischief, or both of them, manifest an intense satisfaction, and their gentle and innocent look disarms all resentment. But they can never be made to reverse the proceeding. They must be unyoked, and herein lies the secret of the performance. Once being unyoked, the success of the trick causes it to be ever after remembered, and when they want to be unyoked they take this inconvenient method of informing their driver of the fact.

To prevent its first occurrence, care should be taken in breaking them not to allow them to spread their hind-quarters outwards, nor to permit them to lower their heads below the yoke. If they have already learned the trick its repetition may be prevented by buckling stout straps

around their horns and attaching to the straps a piece of wood similar to a single-tree from a wagon with a ring in each end. This will effectually prevent the oxen from bringing their heads together, or one ox from passing his head

communities is their tendency to wander and forage upon the neighbors' fields. Though they do not scratch, yet a large flock of turkeys may do much damage to young crops by trampling them down. Hence, in such localities, it is

common to employ a boy or girl to drive the birds to their feeding range, and keep watch of them to prevent their straying to the neighboring fields, and to keep them together until it is time to return home. Nowhere are the docility and intelligence of the turkey more decidedly shown than in the flocks gathered by the dealers in some of the Western States. There the dealers in turkeys go from farm to farm and collect a few at each place, and



WATCHING A FLOCK OF TURKEYS.

beneath that of the other. Careless driving is the cause, rather than the vice of the oxen.

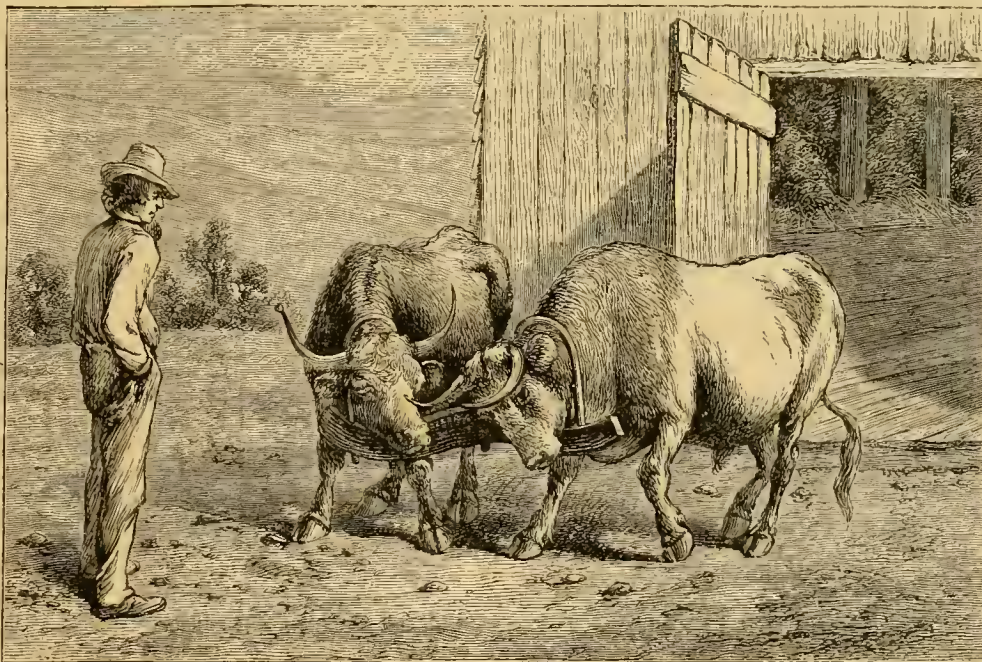
Watching the Turkeys.

The turkey is known to be the wildest of all our domestic birds, yet is capable of a greater amount of taming than it has usually had credit for. When properly treated, turkeys will learn to come at the call, and if a little

drive the whole flock along just as cattle and swine are driven. We are told by those engaged in this business that a few old gobblers take the lead and seem to understand their duties, both at starting out in the morning and in yarding at night, and that a flock of these birds is as little trouble to drive along the road day after day as a herd of heaves.

EXPORTATION OF CATTLE.—The fact that live cattle are now exported from New York

to Glasgow is full of significance. That the trade is profitable and promises to become permanently established is a fact of great interest to our farmers as well as to the consumers of beef. Pork has long been an article of export, and we are satisfied that it should be so. The British laborer without our bacon would be reduced to a diet of potatoes with occasional feasts of bread. With our abundance of more wholesome and palatable food we can spare much of our pork, which is simply our surplus



OXEN TURNING THE YOKE.

pains be taken at first they can be made to go to a particular roost at night. When the young first begin to wander they need watching, not only to protect them from hawks and other enemies, but to prevent straggling. The great difficulty in keeping turkeys in thickly settled

corn in a more portable and merchantable shape. But when we send abroad our beef we trench upon our own needs. Our city people are paying 30 cents a pound for second rate steaks. The farmer has every inducement to raise cattle, as prices are not likely to decrease.

Walks and Talks on the Farm.—No. 120.

"I have been looking," said the Deacon, "to see what you would say in reply to Col. Waring in regard to the injurious effects of summer-fallowing. It won't do for you to quietly back out of your position. You have been arguing for years that stirring the soil made it richer; and now it seems to be proved by the experiments of Dr. Voelcker that stirring the soil makes it poorer."

"I know very well what you think, Deacon. You think that 'sun-burning' the soil destroys the organic matter or manure there is in it. I believe I have more than once admitted that when land lies baking in the sun for several months without its being plowed and worked there *may* be some loss; but that if it is worked enough to kill the weeds and to keep the soil mellow and moist there is little or no loss on the one hand, while there is a considerable gain on the other hand from rendering inert plant-food available."

"That," replied the Deacon, "is simply the old idea that you and I have so often talked about. I do not think it is true; and I was very glad to see Col. Waring produce such positive scientific evidence that the sun will burn out all the manure from the soil."

"Don't go too fast, Deacon. I have not seen the positive scientific evidence."

"I will read," said the Deacon, "what Col. Waring says. It is very clear and explicit, and I do not see how you are going to get round it."

The Deacon put on his spectacles, drew forth an old number of the *Agriculturist* from his pocket, and read as follows:

"The earth used in an earth-closet does not store up all the ammonia that the decomposition of urine and solid faeces supplies to it, but aids in its *destruction and dissipation*." Dr. Voelcker seems to have demonstrated the fact that a mass of dry earth, in the loosened condition in which it is used in the closet, is a poor storehouse for the ammoniacal parts of the manure. If this is true, then the same property of earth should exist in the soil of a cultivated field. Lying in a compact bed it may retain animal manure indefinitely. Plowed and covered with a crop it may be able to carry the decomposition of effete organic matter only to the point of preparing it for use before it is taken up by the roots of the crop. But in the *naked fallow*, which is open to the admission of air to the fullest possible extent, I see no reason why the *destructive* conditions of the earth-closet manure should not be present in the most active degree."

"There you have it," said the Deacon as he laid down the paper, "and it is right to the point, and about the most sensible thing I have read for some time."

"The question," I replied, "is a very simple one. If it is true that earth mixed with manure destroys and dissipates the ammonia which the manure contains or which is formed from the decomposition of the nitrogenous matter, then naked fallows would be injurious. Col. Waring thinks Dr. Voelcker's experiments prove that earth has this effect. But neither Col. W. nor Dr. V. offer any evidence of the fact. And it is only just to say that Dr. Voelcker does not even intimate that he thinks there is any loss of ammonia or nitrogen from mixing earth with manure."

"It seems to me," says the Deacon, "that Col. Waring makes out a very strong case. It

seems that earth which has been used *five times* in a closet contains very little ammonia, and consequently it follows, as Col. W. says, that dry earth 'is a destroyer of the ammoniacal products of the decomposition of organic matter.' And if dry earth has this effect in the closet why will it not have this effect in a summer-fallow?"

"But there is no evidence, Deacon," I replied, "that the earth in the closet destroys either nitrogen or ammonia."

"I do not see how you could have stronger evidence. It was found that earth which had been mixed with the faeces in the closet, and then dried and used again, and again dried and used five times over, contained only, as Col. Waring says, 'a small amount of ammonia.' Does it not follow that the ammonia must have escaped?"

"No, it does not follow."

"What, then, becomes of the ammonia?"

"It is in the soil."

"But Dr. Voelcker did not find it."

"Yes he did, Deacon. He did not find as much as Col. Waring thought he ought to have found. That is all."

"But tell me," says the Deacon, "did not Dr. Voelcker determine how much ammonia there was in the soil before it was used and how much after it had been used five times?"

"Certainly he did; and he did not find as much as Col. Waring thinks he ought to have found. If you, Deacon, had ascertained how many bushels of corn you had in your crib the first of October, say 100 bushels; and should then set a man to husk and draw in an acre of corn, which you thought would yield 250 bushels of ears; and after the corn was drawn in you again measured your corn in the crib and found only 250 bushels, what would you say? Would you say that some one had stolen 100 bushels of corn, or that the rats had eaten it, or that it had evaporated, or that the crib had destroyed it? Now, I say, and I can prove if need be, that there is no more evidence to show that the earth destroyed the ammonia than there is that the rats ate the corn. You did not measure the corn that was drawn into the crib; neither did Dr. Voelcker ascertain how much ammonia was put into the earth."

The facts of the case are these: At the prison in Wakefield dry earth is used in the closets. Dr. Voelcker analyzed this dry earth before it was used in the closets, and again after it was used—once, twice, and thrice—with the following results:

	Nitrogen.	Phosphoric Acid.
10 tons of dry earth before using contained.....	62 lbs.	36 lbs.
10 tons of dry earth after being used once contained.....	74 lbs.	50 lbs.
10 tons of dry earth after being used twice contained.....	84 lbs.	88 lbs.
10 tons of dry earth after being used thrice contained.....	102 lbs.	102 lbs.

Dr. Voelcker remarks: "The increase of nitrogen in earth manure I need hardly say is likely to be greater in the houses of the wealthy or well-to-do people than in prisons, where a less generous diet prevails; and where consequently the food is worked out, so to speak, more perfectly, and the excreta are poorer in nitrogen than in the houses of the wealthy and better fed classes." Still, even under the most favorable circumstances, the accumulation of nitrogen in earth manure, for reasons which I shall mention presently, can not but be very inconsiderable."

Here there is not the slightest intimation

that there is any loss of nitrogen from stirring and exposing the soil.

Dr. Gilbert made analyses of earth manure with the following result:

	Nitrogen.
10 tons of dry earth before using contained.....	14½ lbs.
" " " after using once "	48 lbs.
" " " " " twice "	76½ lbs.

The Deacon got tired of this kind of talk. He could not see the point. And I do not blame him. I can hardly see it myself. Still these are all the facts there are. I fail to see how they show that a summer-fallow injures land.

After looking at the above figures the Deacon remarked: "You say 10 tons of dry earth before being used in the closet contained 62 lbs. of nitrogen. How much nitrogen does 10 tons of barn-yard manure contain?"

"That depends a good deal on what food the animals eat. Ten tons of average manure in the fresh state would contain about 80 lbs. of nitrogen."

"Great are the mysteries of chemistry!" exclaimed the Deacon. "Ten tons of dry earth contain almost as much nitrogen as ten tons of barn-yard manure, and yet you think that nitrogen is the most valuable ingredient in a manure. What shall we be told next?"

"You will be told, Deacon, that the nitrogen in the soil is in such a form that the plants can take up only a small portion of it. But if you will plow such land in the fall and expose it to the disintegrating effects of the frost, and plow it again in the spring and let the sun and air act upon it, more or less of the organic matter in the soil will be decomposed and the nitrogen rendered soluble. And then if you sow this land to wheat after a good summer-fallow you will stand a chance of having a great crop."

This dry earth which Dr. Voelcker analyzed appeared, he says, "to be ordinary garden soil, containing a considerable portion of clay." After it had been passed once through the closet one ton of it was spread on an acre of grass land, which produced 2 tons 8 cwt. of hay. In a second experiment one ton, once passed through the closet, produced 2 tons 7 cwt. of hay per acre. We are not told how much hay the land produced without any dressing at all. Still we may infer that this top-dressing did considerable good. Of one thing, however, there can be no doubt. This one ton of earth-manure contained 1½ lb. more nitrogen and 1½ lb. more phosphoric acid than a ton of the dry earth itself. Why then did it prove so valuable as a top-dressing for grass? I do not like to say, for I do not believe that it was due solely to the decomposition of the nitrogenous matter and other plant-food in the earth, caused by the working over and sifting and exposure to the air and to the action of the night-soil. Still it would seem that, so far as the beneficial effect was due to the plant-food itself, we must attribute it to the earth itself rather than to the small amount of night-soil which it contained.

It is a very common thing in England for farmers to make a compost of the sods and earth from an old hedge-row, ditch, or fence and mix with it some lime or barn-yard manure. Then, after turning it once or twice and allowing it to remain in the heap for a few months, to spread it on meadow land. I have seen great benefit apparently derived from such a top-dressing. The young grass in the spring assumed a rich, dark green color. I have observed the same effect where coal-ashes were spread on grass land; and I have thought that

the apparent benefit was due largely to the material acting as a kind of mulch, rather than to its supplying plant-food to the grass.

I doubt very much whether we can afford to make such a compost of earth with lime, ashes, or manure in this country. But I feel sure that those of us having rich clay land containing, in an inert form, as much nitrogen and phosphoric acid as Dr. Voelcker found in the soil to be used in the earth-closet at Wakefield can well afford to stir it freely and expose it to the disintegrating and decomposing action of the atmosphere.

An acre of dry soil six inches deep weighs about one thousand tons; and consequently an acre of such soil as we are talking about would contain 6,200 lbs. of nitrogen and 3,600 lbs. of phosphoric acid. In other words, it contains to the depth of only six inches as much nitrogen as would be furnished by 775 tons of common barn-yard manure and as much phosphoric acid as 900 tons of manure. With such facts as these before us, am I to blame for urging farmers to cultivate their land more thoroughly? I do not know that my land or the Deacon's is as rich as this English soil; but at any rate I see no reason why such should not be the case.

The late financial panic will ultimately do farmers no harm. I think it will do us good. I was in Wall street the morning after the announcement that the Secretary of the Treasury would buy no more bonds. The last hope was gone. The officers of savings' banks who had rushed to New York to get the greenbacks for their bonds were obliged to go back without them. They knew that a run upon them would compel all the banks to suspend.

"Farmers must be taught," said a bank officer, "that when they lend us money we do not keep it idle in the bank, and that they can not get it all back again at a moment's notice."

All of which is very true. But if a farmer owes a bank, he must pay promptly, panic or no panic. As a rule, a farmer had better invest his money in improving his farm. I have known a farmer who had money in the bank give his note for a mowing machine. He got 6 per cent from the bank. By paying cash for the machine he could have got 10 or 15 per cent for his money.

All financial men are now looking to the farmers to help them out of their difficulties. It is an evidence of returning sense. It is pleasant to have the fact recognized that agriculture is the chief basis of our national wealth. I think, however, that many of our commercial and financial men take only a superficial view of the situation. They talk about there being six hundred millions dollars' worth of farm produce to sell, and are looking to this for relief. Let it be so. It will keep things moving. But it should never be forgotten that the prosperity of a manufacturer or a farmer does not depend solely on the amount of his sales, but on the profit he makes.

Are farmers making a living profit on the produce they raise and sell? Business men would do well to ask themselves this question. It is worth while for the stockholders and bondholders of our railroads to look into this matter. They had better not kill the goose that lays the golden egg.

But it is not for me to discuss financial and commercial questions. My business is to do all I can to make farming more profitable. The Deacon and I talk the matter over again and

again. He has very little faith in farming. He looks upon it as a sort of necessary evil. Farmers do not fail. They have usually good health, good appetites, and good digestion, and as a rule manage to get plenty to eat. But that is about all.

Now, when I get hold of an intelligent, active, industrious, enterprising young farmer I like to say to him that there is a far brighter side to this question. It is quite true that farmers, as a class, are not making much profit by raising crops. In fact there are a good many farmers who never seem to think about profit. All they think about is how much they have to sell and what it will bring in. They do not calculate the cost of raising, harvesting, and marketing, and whether they are working at a loss or making a profit.

Now, I like to say to a young farmer: It is little use for you and I to try to advance prices. We shall have to take what we can get. Fortunately, there are a good many men willing to try to make a living by buying and selling. There is competition enough, as a rule, to secure us, taking one year with another, all that our articles are worth. Our business is to raise the best article at the least cost. Take such a simple crop as potatoes. I heard a farmer say the other day that no money could be made by raising potatoes at 50 cents a bushel. It never seemed to occur to him that if he raised 200 bushels per acre instead of 100 bushels that he could make more actual profit from one acre than from five. One of our Rochester nurserymen raised a crop of white wheat this year that yielded 40 bushels per acre, while the average of the county would not be over 10 bushels per acre of red and white wheat together. The millers would pay 15 to 20 cents per bushel more for this choice white wheat than for ordinary red wheat, and this in itself is a good profit. The ordinary crop of red wheat of 10 bushels per acre would be worth \$16; while the 40-bushel crop of white wheat would sell for \$75. If the crop of red wheat affords any profit, how much would the crop of white wheat afford? Figure the interest and taxes on the land, the cost of plowing, harrowing, drilling, seed, reaping, harvesting, and thrashing.

The truth is, we are getting pretty fair prices for our produce in this section. We are not making money simply because we are not farming as well as we should. I would not say this to outsiders, but among ourselves the fact should be frankly admitted and the remedy sought for. Some things are too low, but taking all our crops together prices are high enough for the consumers to pay. Wheat brings a fair price; barley is very high; potatoes nearly up to the average; apples are scarce and in demand at prices which check consumption; corn is cheap but a good farmer rarely sells his corn; hay is extravagantly dear, and so is straw. Pork is too low; beef and mutton are cheap, though dear enough for the quality. Really good beef and mutton command a fair price. And yet we are complaining of hard times. Why? Simply because we do not farm well enough to insure good crops. We raise produce enough, but our average crops are so low that they afford little or no profit. And so of our live stock. We do not pay sufficient attention to breeding choice animals. The markets are flooded with inferior meat, which costs the farmers far more than it is worth to the consumers. This is very plain talk, but I think it is true, nevertheless.

A Dairy and Ice-House.

The present is an era of improvement. Not only are we improving our methods of agriculture and dairy management, but the tastes of the agricultural population are rapidly becoming elevated and refined. The first symptom of a regeneration in this respect is to become dissatisfied with our present plans and surroundings. It is the dissatisfied man who is ever on the alert to improve his position. That farmers have learned to become dissatisfied with that which heretofore fulfilled all their hopes and desires is proved by the simple fact that many hundred thousands of them have seen it fit and necessary to institute measures for co-operation to elevate themselves materially and mentally, and not only to raise the standard of intelligence amongst their class, but to secure the increased comfort and enjoyment which such a higher standard of intelligence will inevitably insist upon. How much of this is due to the efforts of the *American Agriculturist* in working for many years to bring about such an amelioration of the farmer's condition and such an improvement in his status as a member of the most useful and most deserving class, of society we do not care now to say. These thoughts occur to us as we consider the repeated, almost daily, applications to us for aid and advice in improving not only the methods of working, but of the surroundings of the farmer. Old things are truly passing away, and with him, indeed, all things are becoming new. Not only is he striving after that excellence which now is the most profitable, but he desires to remodel his farm buildings in accordance therewith. He wants, for instance, a dwelling, a barn or a dairy house of the most improved construction. He also wants all the mechanical appliances, the wind-mill, the horse-power or the steam-engine, to relieve him of personal labor or to procure for him what no effort of his own muscles could procure. In addition he wants to surround himself with objects that are pleasing to the eye as well as profitable to the purse. Gardens, orchards, shade and ornamental trees, and buildings that are no eyesore to him are becoming desirable. That he appreciates, and depreciates also, an eye-sore prove what a change is taking place.

In the bundle of letters from correspondents which is always before us, we note several which refer to dairies and dairying. The various points referred to in these letters we propose to touch upon as shortly as may be. First, chiefly as to the dairy itself. The building is not unimportant by any means. A wooden dairy house is neither warm in winter nor cool in summer. The material, being very perishable and readily decaying, gives forth odors which are quickly absorbed by the milk and cream. Besides, almost all lumber has more or less odor peculiar to it, which it retains until the process of decay sets in, when mold and musty smells usurp its place.

A well-built frame dairy set upon brick or stone foundations and well plastered inside and lime-washed outside may be kept in fairly good condition; but stone or brick with a slate roof is by far the best kind of building for a butter dairy. Second, as to the system of setting the milk. Both the deep can and the shallow pan systems have their advocates, and the opinion of our well-known associate of Ogden Farm is altogether in favor of the deep can system. But if any person is doubtful of

its propriety and approves of the shallow pan system of setting milk, one too which is certainly followed by the majority of butter makers, we would not enforce the contrary upon him. Each system has its advantages, and it is greatly a matter of taste or convenience for the adoption of one or the other that would balance the scale either ways. As to a supply of cold running water, that is absolutely indispensable to success, if there is not such a building as shall insure a proper temperature with perfect regularity at all seasons. Even then we would have a stream of cool water flowing around the pans if possible. A stream of pure water constantly flowing would carry off much impurity that might otherwise remain floating upon the air of the milk-room,



ORNAMENTAL DAIRY AND ICE-HOUSE.

and be retained by the milk. Water is a rapid absorbent of such impurities. If no flowing stream is available, a well and windmill may be substituted. In such a case the building, shown in the engraving above, would be such a one as would be needed. Where the means are available to make it picturesque, it is not only a private pleasure to do so, but a public duty. A pleasing object gratifies the thousands who are led to admire it, and helps to educate the ideas of every beholder. The size of building needed for a dairy of 25 cows would be about 24 feet square. This would give ample room for an apartment for milk and cream, and a separate one for churning, in which there would be a sink and waste-pipes. If desired, the ice-house might be built as an extension at the rear. The ground plan of this house might be arranged similarly to that shown in the *Agriculturist* of November, 1871.

Poultry-Houses.

Several of our readers request us to give a plan for a poultry-house for the accommoda-

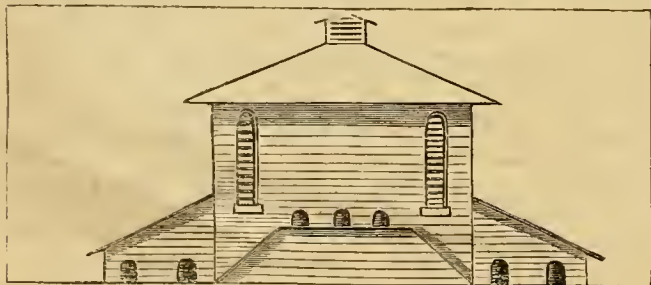


Fig. 1.—ELEVATION OF POULTRY-HOUSE.

tion of fowls, ducks, and geese. Such a one as is here shown will answer the purpose. The central part of the building is arranged for the

fowls in two compartments, as seen in figure 3. The apartment *a* is for roosting, and is entered from the rear end of the building (fig. 1), in

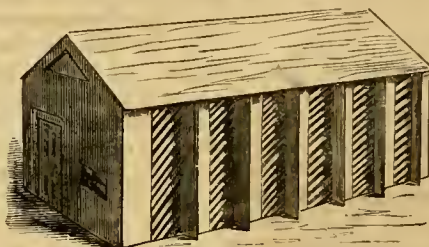


Fig. 2.—MANNER OF VENTILATING.

which the entrance holes are seen. These holes are raised above the ground so as to exclude skunks, and are approached by the fowls by means of short ladders and a step. Doors from this apartment lead to the front one, reserved for laying and setting hens (*b*, fig. 3). The side-wings (*c*, *c*, fig. 3) are intended for ducks and geese, and if one is furnished with small doors, so as to exclude the geese, the ducks may be kept separate. The nests in these apartments are made upon the ground; a square frame of lath nailed together and laid upon the ground is sufficient, or a hole scooped in the ground will answer a very good purpose both for ducks and geese. Doors from the

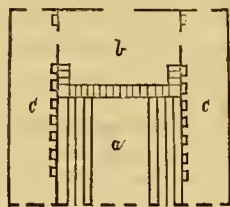


Fig. 3.—GROUND PLAN.

main building (in *b*) lead into these side apartments. The plan here given will admit of any expansion or modification, so that the main features are preserved, that may be desired to suit the ideas of the small or large poultry-keeper. Figure 2 shows a method of ventilating a poultry-house

when it becomes necessary to do so in the warm weather of summer, and also of rendering it tight and warm in winter. Every alternate board on each side of the building is hung upon hinges so as to open,

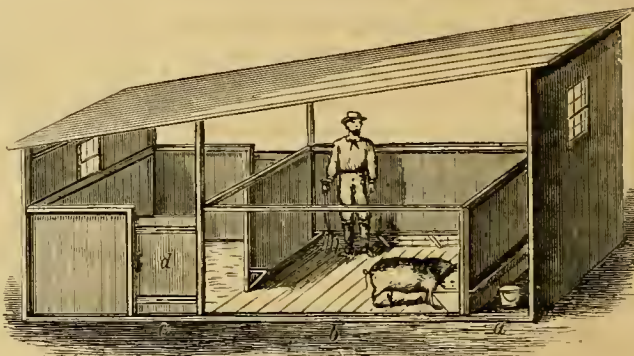
and the space is lathed over as shown in the figure. In summer the boards are fastened back and the spaces left open to admit the air. During the cold weather the boards are shut and tightly fastened. This plan for a house may be used on a large or small scale.

A Comfortable Pig-Pen.

The total value of our swine is a very large item in our nation's annual balance-sheet. It probably reaches in the aggregate a sum of over 200 millions dollars every year; yet it is safe to say that the aggregate sum of discomfort, if not of positive suffering, which, on the whole, our pigs are made to suffer through the thoughtlessness or carelessness of their owners is never truly appreciated. It certainly far surpasses that inflicted upon all other stock combined. The pig is generally contemned and abused. If

it were once felt that all this ill-treatment was costly, and that the profit accruing from the gross amount of pork yearly raised is considerably lessened in consequence, it would lead to a more careful and humane treatment of these animals. The pig is a cleanly, sagacious animal, that thrives best in dry, warm quarters, and if allowed to do so will always choose such. His feeding and sleeping apartment should always be of this character, and there should be an outer yard to which he can have ready access, and which should also be protected from the weather.

We give a plan of a pig-pen which combines these requisites, with other conveniences that enable the occupants of the pens to be changed from one to another very readily. The engraving shows one complete pen with its divisions. A row of these pens may be built in one long



PLAN OF PIG-PEN.

shed, and the description of one will answer for all. The pen is 20 feet long from front to rear by 8 feet wide. The posts at the front are 10 feet high, and at the rear 7 feet. A feed passage runs along the front of the pens, shown at *a*. The feeding and sleeping apartment is shown at *b*. At *c* is a passage which also passes along the whole building, but which when closed by the doors (*d*) makes the passage a part of the yard (*d*). The feed passage (*a*) is three feet wide. The feeding place (*b*) is 10 feet deep by 8 feet in width; the passage (*c*) is 3 feet wide; and the yard (*d*) 4 feet—making the whole space of the yard 7 x 8 feet when the passage is closed. When the passage is opened the door (*d*) closes the opening from the yard into the feeding place, and the occupants of the pens are shut up. Any pig that may have to be moved from one pen to another can then be driven without any difficulty wherever it may be desired. A swinging door in the rear may be made to allow the pigs to pass in or out into the barn-yard or the pasture if one is provided for them. But generally it will be found better to have the pens built upon one side of the barn-yard, so that the pigs may be used to work up any materials for manure or compost that may be at hand for the purpose. The floor of the pen should be, in part at least, of plank; that of the yard may be of pavement, of cobblestone, or of cement, but should be so laid that it can not be torn up. A tight roof should cover the whole, and slide windows at the rear and front should be made for good ventilation. This is very important for the comfort of the animals in hot weather. We saw a pen last summer in which a large number of Berkshire pigs were kept, and in which there was no means of ventilation; the heat was insupportable, and must have been very injurious to the pigs, which appeared to suffer greatly. The floor of the pens should slope backwards at least two inches in ten feet, and the yards should be well drained. A bar is fixed around the bottom of the

pen, about six inches above the floor, and projecting about six inches from the side, for the purpose of preventing the young pigs from being overlaid by the sow and smothered. A large quantity of waste material may be worked up in these yards, and will add much

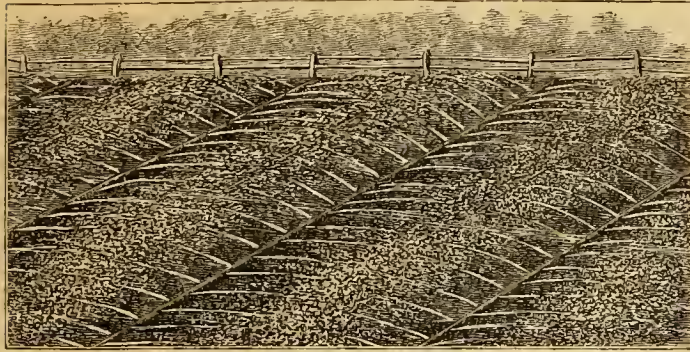


Fig. 1.—IRRIGATING WITH PERFORATED PIPES.

to the comfort and cleanliness of the pigs. The framework of these pens should be of 6 x 6 timber for the sills, 4 x 4 for the posts, and 2 x 4 for the girts and tops and bottoms of the partitions. The whole quantity of lumber needed for one complete pen would be 1,200 feet, consisting of 80 linear feet of 6 x 6, 61 linear feet of 4 x 4, and 77 linear feet of 2 x 4, 104 feet surface of 2-inch plank, and 500 feet of boards if the roof is of shingles; but we have found strips of half-inch chestnut or spruce boards 6 inches wide laid so as to break joints, and painted with a coat of coal-tar, to make a light and excellent roof for such a building. A row of ten of these pens—making a building 80



Fig. 3.—IRRIGATING WITH UNDERGROUND PIPES.

feet long, able to accommodate 50 or 60 pigs—would cost about \$350 completed.

Some Methods of Irrigation.

It is strange that in our climate, where it can be so advantageously practiced, the art of irri-

gigate; in places where a spring is situated upon a hill-side its waters are gathered into a channel and allowed to meander through a patch of grass called a meadow. In the West, however, people are by necessity learning how to irrigate, and instinctively fall into the meth-

ods used by the farmers of the Eastern continent for many ages past. Curiously enough, it seems that every one begins to irrigate in this same old-fashioned way—viz.: by means of canals and a system of smaller channels, or by means of flood-gates retaining the overflow of freshets upon the level banks of the streams. But lately new methods of irriga-

tion have been adopted in England in places where permanent works have been found desirable. Notwithstanding the moist climate and the abundance of rain in England, the irrigation of grasslands has been found very profitable. One of the methods adopted there is shown in figure 1. It is called the Stoke Park irrigation system, because it was first applied to 40 acres of land upon the Stoke Park estate of Mr. E. J. Coleman. A twelve-horse-power engine, working a force-pump, draws water from a reservoir and forces it with a pressure of 75 pounds per square inch through a series of pipes perforated with small holes in the sides. A supply-pipe of iron is laid down beneath the surface. From

this pipe the perforated leaden pipes are laid at right angles in parallel lines 16 yards apart. A piece of land of about an acre and a half is watered at one time by a shower of spray continued for 15 minutes, during which time ten tons of water are applied. Then certain cocks are turned, and the water is applied to another section, until the whole 40 acres are watered. The watering is done during the night, so as to avoid the ill effects which might occur from a hot sun immediately after the watering. The growth of grass thus produced, assisted by top-dressings of manure, is equal to one inch per day, and upon six acres of the land thus irri-

gated 400 sheep may be fed for six months, which is ten times as many as could be carried by the same land without the irrigation. The annual profit resulting is equal to nearly \$175 per acre; the gross yield being equal to \$231 per acre, and the annual cost, allowing for rent of land, \$7.50; manure, \$30; interest upon cost of machinery and apparatus, with proper allowance for maintenance and repair, \$15; with all other expenses equal to a total of \$56.25 per acre. In another locality the same system applied to Italian rye-grass for mowing produced 70 tons, being 17 feet in length of growth, the crop being cut nine times. Another well-known farmer grew 80 tons per acre, and is assured that he could grow 100 tons, which would be equal to 20 tons of hay from one acre.

Another English method of irrigation is

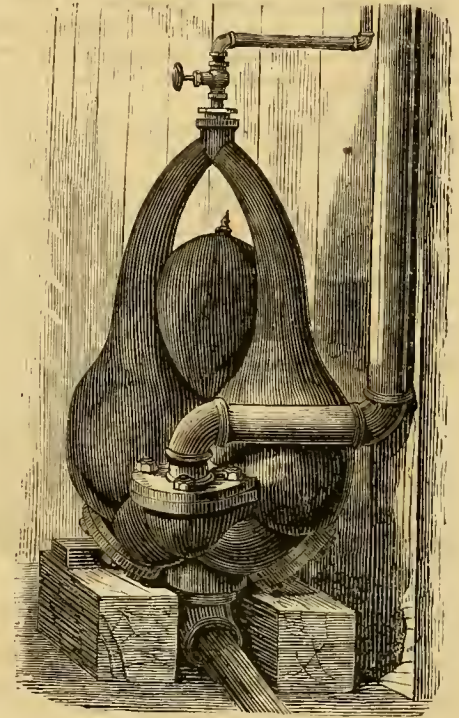


Fig. 5.—PULSOMETER.

shown at figure 2. This is applied to grass-land and also to market-gardens and grain crops. In this case the water may be forced by an engine or may be brought from an elevated reservoir. Less power will be necessary or a less head than would be needed for a pressure of 70 pounds per inch, or a head of 124 feet as needed in the former system. It is also less costly. The pipes are laid underground with ordinary hydrants 200 feet apart. A rubber hose and sprinkler is fixed to the hydrant, and one man is able to water a ten-acre field in one night. The cost of this apparatus, includ-



Fig. 2.—IRRIGATING WITH HOSE

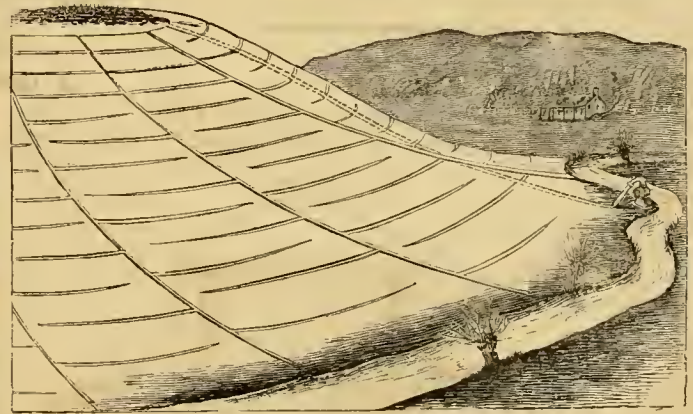


Fig. 4.—IRRIGATING WITH PUMP.

gating should be almost wholly unknown. At present we have only the rudest attempts to

gated 400 sheep may be fed for six months, which is ten times as many as could be carried

ing an engine and an elevated reservoir, is about \$250 per acre for 10 acres. For smaller

tracts the cost would be increased proportionately, and for larger tracts the whole cost per acre would be lessened. This system may be applied to land under the plow.

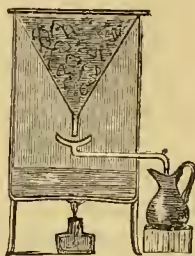
Figure 3 shows a method which we suggest as readily applicable to our own circumstances, which in general will not admit of the cost of either of the previously mentioned methods. It is the exact reverse of draining. A series of drains are laid exactly as for drainage, but not more than a foot beneath the surface. The dotted lines show the position of the drains as laid in a garden. Water being let into these pipes will escape at the joints and irrigate the land below the surface. The roots of the plants will be supplied by the absorption of the water which will find its way to the surface. The circulation of the water will aerate the soil, and being applied beneath the surface the water will not cause the surface to bake, and it will always be mellow. The tiles laid should be those with collars, and they should be laid with equal care and skill as if for draining; but it is obvious that the expense will be much less, and the annual cost of interest upon the outlay necessary would be less than the cost of the annual labor needed to make ditches and channels as in the ordinary method of irrigating. The whole of the digging may be done with the plow.

Figure 4 shows a method that may be applied where water is to be raised from a creek or well to irrigate a hill-side, as in the cases of several of our correspondents whose letters are before us. In such a case a reservoir should be made upon the highest spot in the field, and a pipe laid either beneath or upon the ground through which the water is forced. For small affairs a two-horse power may be used to operate a rotary-pump, which will raise a stream three inches in diameter, or a quantity nearly equal to 100 gallons, 100 feet high per minute. For larger operations steam should be employed. One of the best, if not the best and cheapest mode of thus using steam is by the pulsometer, a machine which is operated by the steam direct, without the intervention of any engine. It is shown at figure 5 as it appears when in operation. The steam is admitted by a pipe at the top to one of the two chambers of which the machine consists. A ball valve prevents the steam entering the other chamber. In this chamber the steam, after having forced the water previously contained in it out through the discharge-pipe, is condensed, forming a vacuum as nearly perfect as may be. As soon as the vacuum is formed, the ball-valve at the top closes the orifice and shuts off the steam, when the water from the suction-pipe rushes in and fills the chamber. In the meantime, while one chamber is filling a vacuum has been forming in the other, and the steam, being shut off from that, forces the water contained in the full chamber into the discharge-pipe. Thus the action is alternate, and similar to a succession of pulsations; the steadiness of the flow being secured by means of an air-chamber in the center of the machine. This machine, so cheaply operated and so indestructible in use, is excellently adapted for raising water from wells and streams for irrigating purposes, and for forcing it to any height desired; the height depending only upon the pressure of the steam in the supplying boiler. The cost of a machine able to raise 110 gallons per minute is only \$200, and one able to raise 1,100 gallons per minute is \$800. This machine is made by C. H. Hall & Co., 20 Cortlandt street, New York.

The distribution of the water thus raised is effected by means of small channels, as shown in figure 4, by which the whole surface may be saturated. After the saturation the surface is allowed to dry, and when sufficiently dry it should be cultivated. If the surface is grass, a continual current may be allowed to flow during every night.

Distilling Water.

"A Correspondent" asks if there is any simple method of distilling water in small quantities. A plan we have seen used by amateur photographers is represented in the engraving. A thin glass jar or a reservoir of tin is supported upon a tripod six inches long. A glass, porcelain, or metal funnel is closely fitted into the top of the jar. A cover is fitted over the funnel. The point of the funnel should reach below the center of the jar, and beneath the point a pipe is fitted having a bowl so placed as to catch the drip from it. If the whole

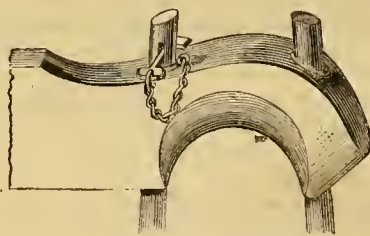


WATER-STILL.

affair is of glass, a common glass retort having the bottom of the bowl cut off and the tube passed through a cork fitted in the side of the jar, makes a very neat and handy apparatus. The point of the funnel is to be closed with a cork, and the funnel is filled with broken ice. A few inches of water is placed in the jar, and a spirit-lamp beneath it causes the water to boil. The steam arising is condensed upon the sides of the funnel and pours down into the bowl of the pipe beneath it and passes out into the receptacle placed to catch it. Unless the glass jar is of a kind to stand the direct application of heat it must be set in an iron pan containing sand. This simple contrivance may be made of tin if rough usage is likely to happen, and will answer any purpose in which the distillation of small quantities is desired.

A Key for an Ox-Bow.

A key that can not slip out from the slot in the bow is here shown. It is made somewhat like a common key, having a projecting flange upon one side of the shaft and a round or oval flattened head upon the end. The flange, being



KEY FOR AN OX-BOW.

passed through the narrow slot, turns and lies flat upon the yoke, so that it is impossible for it to be worked or jarred out. A small chain fastens it to the yoke, by which it is always kept in its place and at hand when wanted, which is not the least recommendation of this plan for an ox-bow key.

WINTER CARE OF SHEEP.—Winter is a critical time with sheep. The greatest danger is in too much care and coddling. If well fed with

good clover hay and with plenty of water to drink, an open shed with an uncovered dry yard attached is better than any stable or tight close shed. Warmth is more injurious than cold, and sheep may safely be trusted to exercise their instincts in seeking shelter. It is well to divide the flock, and if it numbers as many as 50, to make three divisions: rams, wethers, and ram lambs in one flock, ewes in lamb in another, and tender ewes and ewe lambs in another. As changes may be seen desirable they should be made and the feed should be apportioned according to the necessities of each flock. As soon as a sheep appears to be ailing it should be removed from the flock, and if any cough or lung disease is perceived, a tablespoonful of turpentine should be administered as a remedy against the lung worm. Salt should be given in abundance, and oats, rye, or buckwheat, or wheat bran, but not much corn, especially to sheep that are in poor condition.

Mr. Arch and the English Laborers.

After a visit of two weeks in Canada, Mr. Joseph Arch, the president of the English Laborers' Union, arrived in New York, where we had the pleasure of an interview with him and Mr. Arthur Clayden, who accompanies him. We found Mr. Arch a true representative of his class, a simple-minded but withal shrewd, cautious man, who feels his way carefully before committing himself. He has no private ends to serve, and his whole soul is evidently given to the purpose with which he is identified. This is solely the advancement of the English agricultural laborer and the improvement of his condition. There are many insurmountable difficulties in the way of achieving these results without extensive emigration. The wages of the English laborer are at zero, and that zero is simply one degree above starvation. He has no hope beyond his weekly pittance, and no resource when health fails or old age renders him incapable but the parish poorhouse or the dole of the pauper. His promised land is America. Mr. Arch's visit hither is to survey the prospect that awaits his fellow-laborers on their emigration across the Atlantic. Their circumstances are peculiar. They will be enforced exiles from their native land, which, notwithstanding its failure to sustain them otherwise than in poverty, they still look upon with affection as their home. They are poor in everything but habits of industry and a wealth of will and ability to labor. They have no money, and the great majority of them can not pay their passage hither. Land speculators and those who hope to make money out of this movement have therefore nothing to hope from it. Those who are most closely interested in this matter, then, are those farmers who desire to have skilled and trustworthy laborers for their farms. That they may know on what condition such laborers may be procured, we relate the substance of our conversation with Mr. Arch in regard to this feature of his plans. The laborers are mostly men with families. The whole family will emigrate together. They will desire the accommodation of dwelling houses suitable for their modest wants, in which their family relations can exist as heretofore, undisturbed, and more conveniently if possible. Boarding in the house of their employer is undesirable and disagreeable to the English people, who are very much attached to the privacy of a home. Those who desire to employ these laborers must be prepared to make application for them through

some recognized agricultural association, county, or district, or State, as may be (or any local Grange would be a proper vehicle), whose officers will be responsible that the application is *bona fide* and that the contracts made will be carried out on the part of the employers. They will also be prepared to advance the funds sufficient to defray the expenses of the laborers from their present to their future homes, which amount will be repaid out of their wages. Negotiations and contracts will be made by the Laborers' Union or its recognized officers, and through them with the laborers personally. As this movement contemplates the removal to America of many thousands of persons it is necessary that a perfect organization be effected, and that Mr. Arch as its representative shall satisfy himself of the desirability of his friends' removal hither. To this end he will make a lengthened visit to this country next spring, arriving here in May, and spend four or five months examining the various fields for emigration which present themselves. At that time he will be prepared to visit any locality and confer with any association that may desire to enter into arrangements with the Union for the transfer of any number of laborers and their families. In the meantime we shall convey such information of the progress of this movement in England as may reach us. At the present time the Union consists of over a hundred thousand English laborers, and is rapidly extending. A number of letters have been sent to Mr. Arch in our care. The writers of these must not feel disappointed if they receive no reply, as his work is of such magnitude that he can not treat with individuals.

A Good Jersey Cow.

The Jerseys are working their way into favor as family pets and butter cows. They are accustomed to kind treatment and plenty of food in their native island, and their true place seems to be in the village and its suburbs, or places where but one or two cows are kept, rather than upon the farm in large herds. A small fifteen-sixteenths grade heifer, sold two years ago from Poquonnoe Farm, has made a remarkable record. She is one of the smoky-fawn animals, with dark points, now in fashion, whose comeliness is thought by some to damage the milking qualities of the breed. Since she came into the hands of her present proprietor, she has had the run of a good pasture in summer and some extra feed in the stable. The present season, at four years old, she is making over two pounds of butter a day, of the finest quality, such as is very properly called gilt-edged, and would sell at \$1 a pound in the city markets. She would be called a handsome cow of any breed, and yet her beauty does not seem to be incompatible with rich milk and plenty of it.

Oats and Peas.

A correspondent in Clarke Co., Va., wishes to know all about the crop of oats and peas alluded to in Walks and Talks on the Farm, No. 118—the kind of pea, where purchased, quality per acre, and whether we think the crop will succeed in Virginia, and last, but not least, how the land was prepared for that crop of 84 bushels per acre.—The land was in corn in 1872, clover in 1871 and 1870, wheat in 1869, barley in 1868, and corn in 1867. The field was manured for corn in 1867. A part of the

field was also manured for corn in 1872. There was nothing peculiar in the preparation of the land for the crop of oats and peas. In the fall of 1871 the clover sod (the field having been pastured that year and mown for hay and for seed in 1870) was plowed with a three-horse plow and left rough for the winter. It was harrowed and cultivated in the spring, and afterwards plowed, harrowed, etc., and sown to corn in drills $3\frac{1}{2}$ ft. apart. The corn was repeatedly harrowed with a Thomas harrow, and when too large to harrow was cultivated at short intervals until about the first of August. The land was very clean. The next spring (1873) it was plowed, thoroughly harrowed, and was then (May 6th) sown with oats and peas drilled in together, at the rate of four bushels per acre— $2\frac{1}{2}$ bushels peas and $1\frac{1}{2}$ bushel of oats. This is all there was to it. The crop was cut with a reaper July 30th. The land was afterwards plowed and sown to winter wheat. If the crop of oats and peas is considered a large one, it is due to a little good manure and to very thorough cultivation while the land was in corn. The peas were bought in Buffalo, and cost \$1.40 per bushel. They were the "Canada Creeper" pea. The farmers in Western New York seldom use their own peas for seed, owing to the fact that they are more or less "buggy." They think it better to get their seed from Canada or from the northern counties of the State of New York, where the pea-bug does little or no damage. In regard to whether this crop would do well on our correspondent's farm in Virginia, we can only say that we see no reason why such should not be the case, provided the land is in good condition. The Southern "Cow Peas," for which the seasons in New York are too short, succeed admirably in Virginia, and have received less attention as a source of fodder than Virginian cultivators have given them.

Faith in Specialties.

It is one of the weak points of American farming, at least in the Eastern States, that we have no system founded upon an intelligent apprehension of the capacities of the soil and the wants of the market. When wool is high we rush into sheep, and are soon overstocked; wool falls off, and the sheep are sold for a song. When pigs are ten dollars at four weeks old we invest in breeding sows, and after a successful season or two pigs are so plenty that we lose money on every pig that we raise. It is cheering in these days of change to come occasionally upon a man who has faith in specialties, and is content to produce a uniformly good article, whether the price is high or low. In a recent visit to the farm of J. N. Blakesley, in Watertown, Ct., we found a remarkable instance of perseverance in well-doing. Mr. Blakesley is a gentleman of the old school, now eighty-five years of age, still hale and hearty, and attending to his stock every day. He has been the owner of his large grazing farm for over sixty years, and has had one line of policy from the beginning.

Watertown is well known as one of the best grazing districts in Litchfield county, and from a very early day has been famous for a breed of cattle known as the Watertown Reds. They are probably from the same stock as the Devons brought over in the first settlement of the country, and bred by the farmers in this vicinity with a good deal of care. Taking a hint from the success of this stock, Mr. Blakes-

ley bought Devons in 1812, and has bred them with success ever since. He has a herd of twenty-six head, oxen, steers, cows, and calves. A single yoke of thorough-bred Devons do all the work upon the farm. They are so perfectly trained that they can be driven as well without the yoke as with it. Through all these years he has found nothing that suited him so well for working cattle, beef, and milk. Whether the Devons were up or down he has always had them to sell. Another of his specialties is the merino sheep, of which he has a fine flock numbering 162. They are the descendants of an importation made in 1810 by Peck & Atwater, of New Haven, and he has had them under his care since 1815, breeding for special points and keeping the flock in the most thrifty condition.

The flock is now very uniform in size, and yields from four to five pounds of washed wool per head. One breeding ram yields ten pounds. They are known as the Infantado Merino Sheep. He sells the sheep for stock so far as there is demand, and claims that he has a good mutton as well as fine wool breed of sheep. They were certainly large, well-bred animals. Whatever the change in the popular fancy is in the market price of wool, he has kept right on breeding from the old stock, and has no doubt that he has the best breed for a Connecticut farm. One of his specialties is old sod for pasture and meadow. He showed us a large field where there had been no plowing for thirty-four years. It was cleared of stones and planted for two years then, and has yielded good crops of hay ever since, with an occasional top-dressing of stable manure. In late years he plows but little, relying mainly upon his sheep and cattle to keep up the fertility of the farm by grazing. He succeeds admirably.

ARTIFICIAL BUTTER.—During the scarcity occasioned by the investment of Paris by the German troops a substitute for butter was improvised by an ingenious Frenchman. Necessity was thus the mother of the invention by which the occupation of the cow is now threatened in the United States. Butter in which milk or cream has no part is now made by a patented process in New York and Connecticut. At least the stuff is called butter. It is made from the oleine or the liquid part of the suet of cows and oxen slaughtered for beef. After the suet has been chopped up and melted it is pressed, and the oleine is separated from the stearine. The stearine is made into candles, but the ultimate use of the oleine is no such light matter. It is churned, colored with annatto, and the product is called butter and is sold as such. It is not at all to the credit of the general run of butter makers, that we are forced to say after tasting this artificial butter that there is a vast quantity of real butter comes to market that tastes much worse than this colored extract of suet; and that a large portion of the population may have cause to bless the inventive Frenchman who first initiated the manufacture. But so it is. Fortunately or unfortunately as it may be, this business can never grow to excessive proportions for the reason that it takes a whole cow or ox to make about 30 pounds of this butter, and it can only be made once and then after the death of the creature. The cows' occupation is therefore not gone as yet, and this new butter is only a companion product to the sugar which is made from sawdust, or the whiskey which is produced from old rags.

The End of the Buffalo.

The final extinction of the buffalo is only a question of time. The period when this noblest

which no herbage grows mark other places upon which a carcass has decayed and killed the vegetation, and from which the bones have been gathered for shipment to St. Louis. The

bare spot remains uncovered with grass, a lasting *memento mori*. The money gained by this slaughter only curses those who earn the miserable pittance thus procured. One dollar per skin and one dollar per ton of bones is the price paid for the labor, exposure, and wretched life of these men. And this miserable sum is yet more miserably expended. Forty-rod whiskey seems to be the chief article of traffic, and the frontier town of Sargent (fig. 4) where some of these men gather to trade their hides or gamble away the proceeds, consists of a single row of saloons of a wretched character, one of which calls itself a billiard saloon, and another is a dance house occupied by a few degraded women. In these places the enterprising visitor bent upon acquiring information will probably have for his fellow lodger at night an unkempt individual who retires to rest with his head upon a pair of revolvers and half a peck of cartridges. It is to support such a horde of men, who prey not only upon the inoffensive buffalo but upon each other and the ill-used Indian and with whom the life of a man is of no more account than that of the buffalo, that these animals are sacrificed and these plains rendered tenantless. The repulsive



Fig. 2.—LONE TREE PRAIRIE.

of our wild animals will live only in history is rapidly approaching and will soon be unless some effort is made to stop the present indiscriminate wasteful slaughter. That the methods by which this impending fate is wrought may be better understood, we present some sketches made in a recent visit to the plains in Western Kansas. The buffalo region is now remote from all actual settlement or possibility of settlement at any early date. The profitable occupation of those vast plains by farmers is a remote contingency. For many years to come there is scope and verge enough eastward of this arid district in which either abundant irrigation or a change of climate is needed to make it habitable for the agriculturist. The buffalo and the antelope have here had their home from time immemorial, and here they might be permitted to exist with profit. But the greed of a class of men, many of whom are desperadoes who carry their lives in their hands and hold those of others as cheaply, who style themselves hunters, is fast exterminating these creatures. Westward from Fort Dodge and a line running northerly from it the ground is occupied with bones of the buffalo. Here and there may be seen the "dug outs" of the hunters (fig. 1) surrounded by drying skins at all periods of the year, irrespective of the season or condition of the buffalo; and heaps of hides are piled in the rear of them. The prairie, a vast expanse of level green upon which one lonely tree (fig. 2) perhaps breaks the monotony,

prairie wolves (fig. 3) may occasionally be seen vainly searching amongst these dry wrecks for a meal, and heard howling as if in dismay at the melancholy prospect. The bones in places

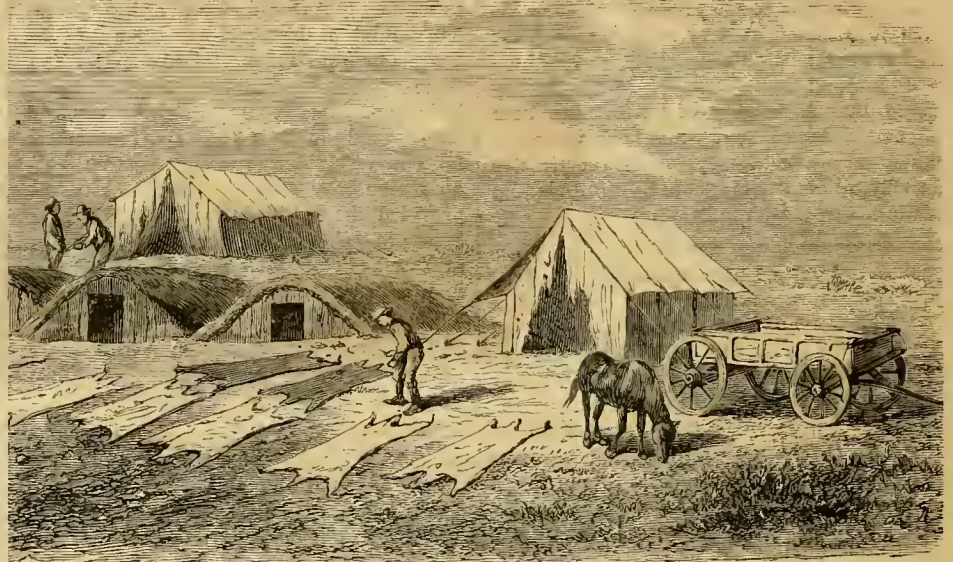


Fig. 1.—STRACUSE COLONY—DRYING HIDES.

near to the railroad stations have been carefully picked up, and occasionally one meets with vast quantities awaiting shipment, as shown in figure 4. Whole trains of cars filled with them

conclusion of this matter only adds to the regret with which we view the whole business; and our earnest hope is that the useless and murderous destruction may be swiftly put an

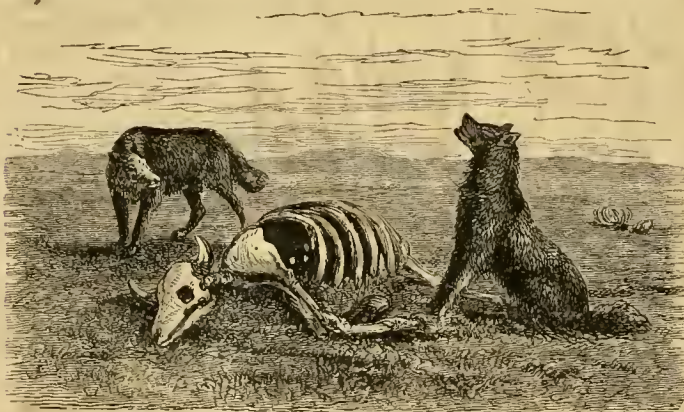


Fig. 3.—COYOTES AND DEAD BUFFALO.

is dotted closely with skeletons, many of which are still held together by the dried flesh, shrunken like a coating of semi-transparent skin, upon them. Bare spots of ground upon

have been forwarded eastward for use in bone-black manufactories. But although the bones have been removed the prairie still exhibits a scar where every buffalo has fallen, and the

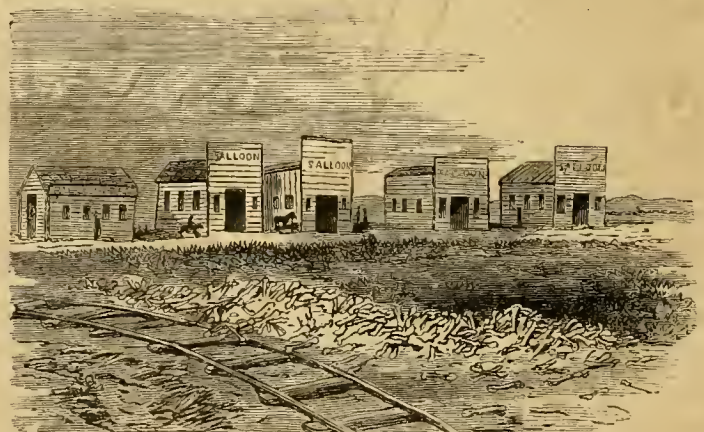


Fig. 4.—BUFFALO BONES AT SARGENT STATION.

end to by adequate legislation. Congress meets this month, and we hope that efforts will be made for a national game law which will prevent the wanton destruction of buffaloes.

A New Variegated Ice-Plant.

Had we headed this article with *Mesembryanthemum cordifolium variegatum*, it is likely that the majority of our readers, appalled by the length of the title, would have passed it by unnoticed. As the plant is destined to be popular, we give it a popular name at once. Every one almost knows the common Ice-plant, the clear vesicles upon the surface of the leaves of which give it the appearance—especially pleasing in a hot day—of having been frozen. This is *Mesembryanthemum crystallinum*, and the new one under consideration is a relative of it. When one of our horticultural friends returned from Europe last year we asked him what was the finest thing in the plant line that he saw abroad. He replied: "The variegated *Mesembryanthemum cordifolium* as used at Battersea Park." Since then our florists have been endeavoring to introduce it, but the plant is so "miffy," as the florists say, that it is exceedingly impatient of travel, and the failures have been numerous and expensive. We know one wealthy amateur who had a plant sent over every fortnight all through the past season, and did not succeed in raising a single specimen. If we mistake not, the first who succeeded in getting this troublesome plant across the water and to grow into a fine specimen was Mr. H. E. Chitty, Superintendent of the Bellevue Nursery, Paterson, N. J. Under his careful culture this obstinate subject was induced to live and grow into a shapely plant, of which we give an engraving from a photograph somewhat reduced in size. In reference to this plant, which now we once have it can be kept without difficulty, Mr. Chitty writes: "The variegated form of *Mesembryanthemum cordifolium* I have good reason to think will be one of the most valuable bedding plants ever introduced into this country. Its very dwarf trailing habit will adapt it to every purpose for which such plants are used, especially for covering rock-work in situations exposed to great heat. Its succulent nature will render it proof against the hottest sun, and like the common Ice-plant, which it so much resembles in

everything but color, it will thrive where scarcely anything else will grow. As a marginal row for the exquisite beds of succulent plants now becoming so popular it can not fail



NEW VARIEGATED ICE-PLANT.

to be of the greatest value; its creamy white foliage will supply just the needed finish. We are led to expect something from this plant on account of our trouble in importing it, it hav-

Othonna—A Fine Basket and Bedding Plant.

There are some plants so very old that they are new, at least to the present generation of cultivators. The plant under consideration—*Othonna crassifolia*—was introduced into English gardens as long ago as 1710, but it seems to have completely dropped from notice, and it was only when new methods of cultivation were introduced that a use was found for it. It is a capital plant for both hanging baskets and for bedding purposes; but baskets and bedding were both unknown to the former generation of horticulturists. We first saw this plant in cultivation at the Botanic Garden at Cambridge, where Dr. Gray called our attention to its usefulness as a basket plant. We have since grown it, and have seen it in the remarkable collection of rarities at Mr. George Such's, where it is employed for basket work. The engraving shows a single branch of the plant, which will give a sufficiently good idea of its habit. The stem is very slender, and when allowed to hang over the edge of a basket elongates indefinitely, bearing small, cylindrical, fleshy leaves of the size and shape shown in the engraving. The plant has the general appearance of some of the *Mesembryanthemums*, and but few would, without seeing its flowers, refer it to its proper family—the

Compositae. Its small yellow flowers are, when the plant is well established, produced in great abundance, and have the neat air that characterizes the whole plant. Were it only for its value as a basket plant we should be warranted in calling the attention of our readers to it, but it promises to be of equal merit as a subject for bedding purposes. Mr. Henry Winthrop Sargent, of Fishkill-on-the-Hudson, whose place, Wodenethe, is known, at least by name, to all devotees of horticulture, has this year made use of this *Othonna* as a bedding, or rather as a carpeting plant. Its low, prostrate habit, the rapidity with which it clothes the ground, and the abundance of its small, lively,



OTTHONNA—A NEW BASKET AND BEDDING PLANT.

ing been sent to us eight times from England before we received a living specimen; but finally we were successful in getting a stock."

yellow blossoms especially adapt it to the use Mr. Sargent made of it—the carpeting of the soil of beds of tall-growing *Echeverias* and

other succulents. Mr. S. is quite delighted with the Othonna, and thinks he has found in it the plant that horticulturists have long been looking for to serve as a carpet to beds in which attractive specimens are set out for the summer. In last month's *Agriculturist* we had a note upon the use of plants for carpeting the soil, and we are glad to add another to the small list there given. Those who decorate their grounds in summer with plants from the greenhouse will never be content to leave the soil beneath them bare when they have once seen how much a carpet of some kind of verdure beneath them not only sets off the particular plants, but contributes to the pleasing effect of the whole garden.

Pruning Grape-Vines.

With the pruning season numerous inquiries come which, reduced to one question, may be embodied in one: "What shall I do with my grape-vines?" One correspondent asks if he shall prune according to Fuller or according to Mead, and our reply is, Do not follow either blindly, but if you do, Fuller is the better guide. With the best directions one must exercise judgment. Knowing the manner of growth of a vine one can use this knowledge to meet the requirements of each particular specimen. It is easy enough to make vines in a collection all alike on paper and to give a fixed rule for treating them. The only trouble is that the vines will not grow according to the book, and though many may be pruned according to pattern others will have departed, through winter killing and other accidents, from the regular order. Then again, vines in towns and about houses are grown as much for shade as for fruit, and a vine thus grown is not amenable to the laws of vineyard culture. Let us suppose that any one of the many who have asked us about pruning stands knife in hand before his vine. The leaves having fallen, he plainly sees the skeleton. He can distinguish by their size and lighter and brighter color the canes which grew the past summer. If he has watched his vines he knows that each cane began last spring as a tender green shoot, that it bore leaves and probably fruit. He sees that on each of these canes there are buds at six inches more or less apart. Now he has only to consider that each of these buds will next spring produce a shoot, which will next autumn ripen into just such a cane as he is now looking at. A grape grower, and indeed a fruit grower of any kind, needs imagination. He must be able to see "in his mind's eye" what will happen next season. He can see that, if he leaves his vine unpruned, next spring shoots innumerable from numberless buds will start, some robbing and starving the others, and the whole vine will become by next fall an inextricable tangle of badly-grown canes. Now let him, using his imagination, consider what he wishes to cover with shoots next year, no matter whether the vine be upon an upright trellis, an arbor, or other support, always remembering that the growth of next spring from the buds already alluded to is the part, and the only part, that will bear fruit. He is pruning for 1874; the buds on the canes that grew in 1873 only will (save in exceptional cases which need not be considered here) bear fruit. Let his eye start from a bud and see if there is room for the shoot that will push from it to properly perfect its fruit. If so leave it; if not, cut all superfluous buds away. It will go hard with many

to cut away nine-tenths of the growth that the vine has made the past season, *but it must be done* if they would keep their vines under control. When vines are grown with regular arms and upright fruiting canes the rule is to cut the uprights back to three buds, one of which, being left for safety, is rubbed out in the spring. It is safe in fall and winter pruning to leave one more bud than is needed, and in spring, after severe weather is over, to remove the supernumerary one. We have briefly stated the main principles upon which all pruning depends, and each vine must be treated according to its present requirements. The novice is naturally timid and afraid of removing too much at pruning, but he may be assured that more vines are injured by too little than too much pruning. A correspondent at Hannibal, Mo., having grown vines for the purpose of laying down horizontal arms, asks us how long these arms shall be. We think that six feet is long enough for arms of any variety; not that longer arms are not practicable, but from the trouble in getting the buds upon a long horizontal arm to start evenly in the spring. If two or three buds get the start of the others they will keep it unless especial care be taken by bending the arm to distribute the vigor of growth equally.

Two Blunders in Cranberry Planting.

We recently visited a plantation of about eighteen acres of cranberry vines on a peat bog, prepared at an expense of about \$350 per acre. Here was an outlay for land and improvements of over \$8,000. The bog had been skimmed and graveled to the depth of eight inches, the owner meaning to do his work thoroughly, not doubting that nature would do hers and return him his capital with interest. The land was in the cranberry belt, within a mile of the shore, where the frost would never prevent a full crop. It was an excellent peat bottom, where cranberries ought to flourish. It was thoroughly prepared and planted with fruitful vines from productive bogs. But this money was all laid out upon land relying mainly upon the rainfall to flow it. There is no stream running through to flood it and keep it flooded until June. So the winter frequently sets in with no water to cover the vines, and when the water comes and just covers the vines, there is nothing to prevent freezing, and the ice lifts the plants by the roots and they perish by the thousand. Or if the gate is not shut, and the water runs off, the surface is frozen and thawed during the winter, and many plants are destroyed in this way. The one indispensable thing in successful cranberry culture has been overlooked. On Cape Cod flowing is deemed of so much importance that in some cases water is pumped on to the plantation in the fall and kept there at large expense through the winter. It is only in case of early and abundant fall rains that this plantation can be flowed in season to escape damage by the ice. There may be occasionally good crops here, but there can be no uniform success, owing to this blunder. Is it not strange, when there is so much unoccupied peat swamp, with all the facilities for flowage, that intelligent men will lay out their money lavishly upon cranberry plantations where success is clearly impossible? A second blunder was the large growth of weeds permitted the second season. The theory is that cranberry vines will get such possession of the

soil the third season that thereafter they will be able to maintain their supremacy without much further care. The sand here was of fair quality, though not of the best. It had been put on so deep that many of the vines had not struck through into the peat, and the growth was rather feeble. The weeds, on the contrary, had grown with great luxuriance, and it would cost at least a thousand dollars to clear the plantation and put it in order for the next season. A little timely labor would have saved all this expense and the loss of growth in the vines from the choking of weeds, which is a much more important matter. The mysteries of cranberry growing are not all solved, but certain things are well known to be indispensable. Winter flowing is one of them, and another is the persistent cleaning of the plants through three summers at least. It is true that cranberries scald sometimes on new plantations from the want of vegetation to protect the fruit; but these early crops are not of much value, and it is much better that vegetation around the fruit should be the vines that bear it, than grass and weeds that are occupying the room which the vines need.

The Grounds and Greenhouses of George Such.

BY PETER HENDERSON.

Mr. Such's place is located about three miles from the village of South Amboy, N. J., right in the midst of a wilderness of sand and scrub-oak; but that the sand has some virtue as a soil is everywhere apparent from the healthy condition of nearly everything cultivated. Lilies, Tuberoses, and Gladiolus, and other bulbs which are grown in large quantities, are particularly fine. The finest specimens of *Akebia quinata* and the new *Ampelopsis tricuspidata* that I ever saw are here; the former in an angle in a house 40 feet high, and no doubt would be double that height had Mr. Such only built his house high enough. Bedded in the ground was a most interesting collection of Agaves (Century Plant), numbering over a dozen distinct species; they were plants ranging from a foot to four feet in diameter, and when grown to the size that they are capable of would form a most striking display.

Our run through the grounds was rapid, and no doubt many objects of interest were overlooked. But the greenhouse department was as carefully examined as our two hours' time would admit of, and I candidly admit that never before to me was two hours spent with greater interest than in examining the wonderful collection that Mr. Such has accumulated here. The first building entered was the Orchid house. I have no pretensions to be an expert in Orchid culture, but it seemed to me that this most valuable collection was in the highest degree of health and vigor. Many of the specimens were unusually large and fine. Some plants of *Oncidium Papilio* (Butterfly-plant) were in bloom, as was *Peristeria elata* (Holy Spirit plant of the Spanish Americans) and a specimen of *Cattleya Schilleriana* that were alone worth coming to see. We were surprised to find so many large specimens of Orchids; plants whose individual value might buy a Western farm. A plant of the beautiful *Dendrobium nobile*, such as we saw here, would be a rarity even in Europe. Last year, Mr. Such informed me, it had over 500 blooms, which were quickly sold to the New York bouquet-makers at 16 cents each, or \$80 for the

flowers from a single plant! and that plant not more than four feet in diameter! At that rate a moderate greenhouse filled with *Dendrobium nobile* would be a little fortune; but it must be borne in mind that special culture is necessary for this family of plants, a knowledge of which is not so easily attainable as is the culture of Fuchsias or Geraniums.

The stove or hothouses were next visited. Here a most remarkable plant of *Stephanotis floribunda*, covering a width of 6 feet by upwards of 70 feet in length, was conspicuous, and must be a grand sight to see when covered with its clusters of fragrant white blossoms. Near it was another climber, *Allamanda Hendersoni*, literally covered with its immense golden-colored flowers, measuring five inches across. Some fine specimens of *Allocaasia Sedeni* and *Veitchi* were remarkable for the metallic luster of their leaves. Another plant interesting to the florist for its comparative rarity we here found in great abundance—*Eucharis Amazonica*, of which Mr. S. had about 50 plants, some averaging 4 feet in diameter. The white lily-like flowers of this plant are much valued for cut-flower decorations. Perhaps the most interesting of anything in this hothouse collection were the Pitcher plants, *Nepenthes*, of which there are some eight or nine species, and most of them very rare. A most wonderful species, *Nepenthes Rafflesiana*, had "pitchers" some of them large enough to hold a pint; the color greenish yellow, speckled and dashed with crimson spots. Our native Pitcher plants, *Sarracenias*, which belong to a different family, have their pitchers formed by the infolding of the broad leaf-stalk, but in these East Indian species the pitcher is a supernumerary appendage hanging from the ends of the leaves, and each pitcher is furnished with a lid.

The palm-house, 25 x 120, contains many splendid specimens; quite a number of them have cost Mr. Such from \$50 to \$75 each to import, receiving them in the usual half-dead condition at that. These plants are getting in demand for horticultural exhibitions, and Mr. Such may soon begin to profitably realize on his heavy investments, for I understand he has the field in this matter pretty much to himself. Our last visit was to the fernery, which, like every other department at South Amboy, was teeming with rarities and fine specimens of the better known sorts. Among the finest things was a plant of *Adiantum Farleyense*, upwards of four feet in diameter. They showed me in London last year, at some of the leading florists' places, much smaller specimens of this fern as something wonderful.

It is to be regretted that this collection of rare plants is not more accessible; but a new railroad line will soon make it so. Americans who visit Europe go into ecstasies over plant collections in London or Paris, not knowing that one of but little if any less merit is almost at their doors. In a few weeks' stay in London last summer I examined nearly all such collections, and with the exception of that of Veitch & Sons I saw none to surpass, as a whole, this of Mr. Such; many, of course, were larger, but for a well-selected collection of well-grown tropical plants, with the above exception, I saw none ahead of it. The superintendent of Mr. Such's establishment is Mr. James Taplin, late gardener to the Duke of Devonshire. Mr. Taplin has good reason to be proud of his work; he is evidently an enthusiastic cultivator, holding the details of his varied charge well in hand, and

the most carping critic would have difficulty in pointing out anything with which to find fault. The taste for the culture of fine plants has vastly increased during the past five years, the fostering care of the horticultural societies of Boston, Philadelphia, and Cincinnati having had much to do in bringing it about. Previously, all nurserymen who had engaged in the growing of fine specimens of stove and greenhouse plants met with so little encouragement that hardly one of them made it a pecuniary success. That Mr. Such will make it so there is hardly a doubt, if our fall auction sales of such articles this year is any indication; for the few small plants of rare kinds that were offered, even in the darkest days of the "panic," quickly sold at high prices.

It may be interesting to know that Mr. Such started as an amateur florist a dozen years ago, entirely ignorant of either nomenclature or culture, did not, as he says, know a Gladiolus from a Tuberose; and that in that short time he has left far behind establishments of similar kinds that have been in existence for 30 years and carried on by professional florists, which is certainly much to his credit, showing in this business as in all others the necessity of the right man for the right place.

[We had intended to give an account of Mr. Such's establishment, but Mr. Henderson has anticipated us. We cheerfully give place to his article, as, coming from one of the trade, it will not be likely to be considered as overdrawn. This general account of a most remarkable collection of plants is entirely within bounds, and we may at another time have something to say of some of its more striking features. Mr. Such's success as a florist is a marked illustration of the fact that a gentleman of education and energy is likely to succeed in whatever direction he may devote himself. If we mistake not, Mr. Such's horticultural career began in a very modest way. He had read one of the *Agriculturist's* onion essays, and was induced to try what he could do in raising onions. He went to work, followed directions, and had the pleasure of harvesting a fine crop. Nor was the crop all that resulted from his labors. The pleasure derived from watching the growth and development of the plants was such that it aroused a taste for cultivating that could not be satisfied, until from one thing to another he went on, and now he has a collection of plants the like of which does not exist elsewhere in the country. We trust that Mr. S. will pardon this somewhat personal allusion, which we make only as an encouragement to others who would gladly cultivate plants "if they only knew how." Mr. Such's example is proof that it is not difficult to learn how. Mr. S. has no hesitation in saying how positively ignorant he was at the beginning, and we know that in an immense collection he not only knows the name of every plant, but all about it horticulturally and commercially.—ED.]

The Late Planting of Bulbs.

Some years ago one of our dealers in closing out his stock sent us a peck or more of Hyacinth and Tulip bulbs, good and bad, but mostly unpromising. Having already potted a supply of good bulbs, we did not care to devote pots to a rather poor-looking lot, so we took a couple of the oblong hampers in which champagne is imported, and about half filled them with a mixture of old moss (sphagnum) and earth, and planted the bulbs in this. The hampers were put in a cold, dark closet, and

left to themselves. Sometime during the winter, when roots had formed, they were placed in a room where it was light but not warm. As the plants slowly developed—and to our surprise the most of them did—and showed that they were likely to flower, the most forward of them were lifted with a bunch of the mixed earth and moss, and placed in pots where they went on and bloomed. We never had more pleasure from bulbs than from this rubbishy lot. The question is often asked if bulbs will bloom again after having been forced in the house. Not well enough to be forced again. When the flowers fade, cut away the stalk and put the pots in a spare light room where the leaves can grow on as long as they will; if still growing when the ground opens, turn them out in some spare place, and leave them. They will gather strength in a few years and give a fair bloom, but will never become "fancy" bulbs again. One word more: Unless you are a bulb fancier—and a novice is not likely to be—do not select expensive named sorts from the catalogues, but go to some well-known dealer and tell him how many bulbs you want, and ask him to give you the best he can of assorted colors for the money. A beginner will at any reputable establishment get what will satisfy him quite as well as if he had made his own selection, at half the price.

Coal Ashes for Garden Walks.

In years past we have published communications from several correspondents commending coal ashes for making garden walks. Living in a locality where gravel can only be had at a great expense, we had our choice between asphalt of some kind, concrete, and coal ashes. The soil is exceedingly light and sandy, and we made the experiment with coal ashes without any great confidence in its success. The bed of the walk was first leveled and made slightly elevated in the middle, then about three inches of fine coal ashes were applied, but carefully spread; a little soil was scattered over the ashes, the whole wetted down by water from a watering-pot and rolled. The walks have been made for more than a year; they were quite satisfactory in a few days after they were laid, and have been improving ever since. They are sufficiently firm, afford a pleasant surface for the foot, and are of a pleasing color, much more so than any asphalt that we have seen. It was anticipated that the ashes would cause annoyance by adhering to the shoes and thus be a trouble to the housekeeper, but there is no difficulty of this kind. Weeds will grow in a walk of this kind just as they will in one of gravel, but a scuffling over when needed, adding fresh ashes where the surface is uneven, and an occasional rolling keep the walks in excellent order with very little trouble. Of course, our ashes are those from anthracite coal. We have had no experience with bituminous coal ashes, but believe they are satisfactorily used in England. Not long ago we visited one of the finest and best kept places in the neighborhood of Boston, and found ashes in use upon a portion of the walks. The proprietor informed us that he was well satisfied with patis made of this material after it had become well settled.

MUSHROOMS seem to be unusually abundant this year in England. A correspondent of the Times states that from Bangor station special trains have been sent laden with mushrooms, in one case of 25 and in another of 18 trucks.

An Ornamental Golden-Rod.

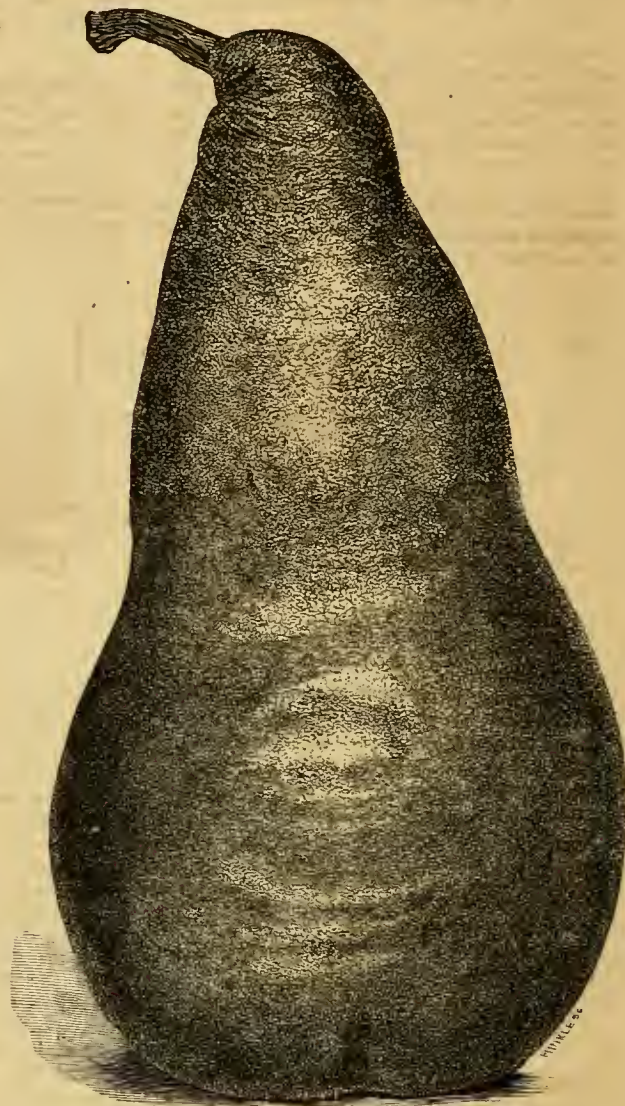
Of late years the taste for cultivating hardy herbaceous perennials has increased in this country. Nurserymen and florists now have

larger than in most of the other species, and of a bright yellow color. The leaves are thick and rigid, the lower ones being oval or oblong with a long petiole, while the upper are sessile. It grows to a height of three to five feet, and

in Boston, it was shown in the collection of Ellwanger and Barry, and on account of its size, beauty, and fine quality, attracted considerable attention. The tree is an upright pyramidal grower, vigorous and very productive.



THE STIFF GOLDEN-ROD.—(*Solidago rigida*.)



PEAR—SOUVENIR DU CONGRES.

their separate lists of perennials, and many amateurs are engaging largely in their cultivation. The *Solidagos* or Golden-rods have generally been omitted from collections, not from the lack of merit, but principally on account of their great abundance throughout the country. They are so common along fence-rows and in uncultivated fields that it does not pay to remove them to the garden while they can be enjoyed in such abundance without the trouble of planting. Were it not for its abundance, *Solidago nemoralis* would make a valuable plant for the garden, especially when planted in masses, as its bright, yellow flowers, which appear in August, render it quite attractive. There are nearly forty species of *Solidago* found in the Northern States alone, and while some of these are widely distributed others are restricted to a few localities. There are a few of these rarer Golden-rods which make a fine appearance in the garden, as they bloom after most of the autumn flowers have disappeared. Among these none is finer than the one here figured, the Stiff Golden-rod, *Solidago rigida*. This species is found from Connecticut to Wisconsin, and southward to Arkansas and Texas, but not usually in abundance. The flowers are

we were much pleased with its appearance in our grounds the past season. The engraving shows one of the lower leaves, together with the upper portion of the stem with flowers. Besides the above species there are a number of others which are worth a trial, though we have only grown *S. odora* and *S. sempervirens*; this last has thick, fleshy leaves, the lower of which are a foot or more in length, and is found in marshes along the sea-coast. *S. Ohioensis*, *S. Shortii*, and *S. Riddellii* are handsome species to add to a collection of herbaceous plants, and there are probably some southern ones which might be grown at the north with a little protection during winter.

The Souvenir du Congres Pear.

BY W. C. BARRY.

This variety, as its name implies, was dedicated to the Pomological Congress of France by its originator M. Morel. It was submitted to public examination for the first time at the Universal Exposition in Paris in 1867, and received a first premium.

At the Pomological Convention lately held

The fruit grows sometimes singly but generally in clusters of two and three from the same bud, and hangs firmly to the tree when exposed to influences which cause other varieties to drop.

The specimens are large to very large, larger than Bartlett or Clapp's Favorite, to which they bear a strong resemblance. The skin is smooth, bright yellow when the fruit is fully matured, with the parts exposed to the sun brilliant red or carmine. The flesh, while it is very like that of the Bartlett, has a less defined musky flavor, and it is firm to the core. Its season of ripening commences about the first of August, before the Bartlett, and extends into September. As a large, showy, very early new pear of fine quality it ranks number one.

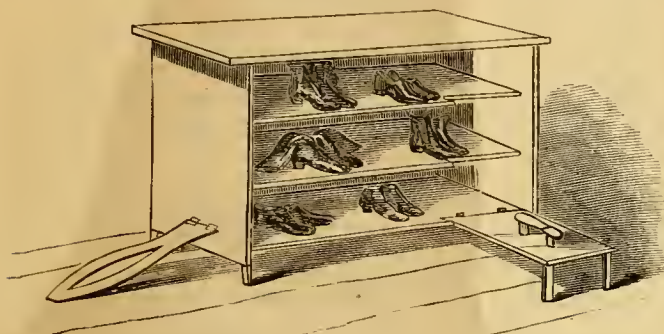
[The specimens of Souvenir du Congres exhibited at Boston attracted much attention from their great size and promising appearance. The engraving here given is from a specimen selected by Mr. W. C. Barry, as being characteristic in form, though it was not the largest in the collection. It is represented of the natural size in the engraving, and it will be seen that it is remarkable when we consider its earliness, as most of our very early varieties are deficient in size. We hope much from this pear.—ED.]

THE HOUSEHOLD.

(For other Household Items, see "Basket" pages.)

A Handy Boot-Rack.

One of the greatest troubles of the neat housewife in the country results from the muddy boots of those members of the family who have to work in the fields, the stables, and the barn-yard. The wet boots must be dried, and are generally left under the kitchen stove, where their presence is very disagreeable. Now, to have a neat kitchen, there should be a boot-rack placed behind the stove, in which the damp boots may be placed to dry. Such a contrivance as the one shown in the engraving

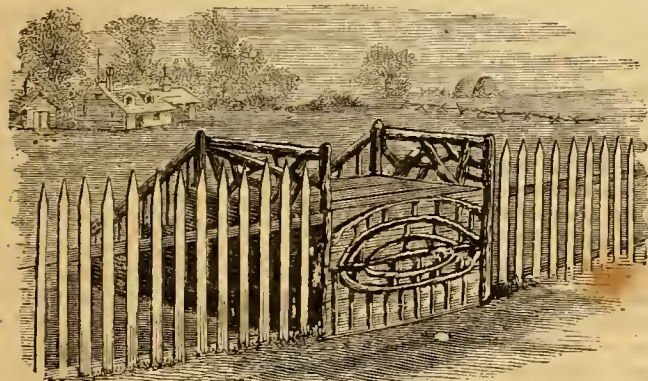


PLAN OF A BOOT-RACK.

has been found a great convenience. It has three shelves about four feet long, ten inches wide, and placed a foot apart. At one end a boot-jack is fixed by hinges, so that when not in use it is folded against one end of the rack and secured by a button. There is also a stand for cleaning boots at the front, which also folds up when not in use, and the blacking brushes are placed on the shelves behind the stand and are out of sight. The two feet of the stand are also hinged, and when it is folded they hang down out of the way. The rack should be made of dressed pine boards, and painted or stained of some dark, durable color.

A Carriage Step.

Few people ever think of the convenience of a carriage step. A man, of course, thinks such a convenience uncalled for, so far as he is concerned,



A CARRIAGE-STEP.

and it is not considered part of a woman's business to see to the building of any such thing as a carriage step. But she may suggest its utility and convenience for her, and by the help of the accompanying engraving and description she may procure one to be made by laying the plans and making the request. Hence we give it a place in the Household Department. It should be built in a convenient place in the garden fence near to the entrance gate. It then remains a part of the fence, and no injurious animal can gain access by its means to the

garden. The steps are inside of the grounds, and a neat hand-rail should be made on each side of it. The engraving so clearly explains itself that no further description is needed.

Home Topics.

BY FAITH ROCHESTER.

A FEW POINTS IN COOKING-STOVES.—A great deal might be said about cooking-stoves which I shall not undertake to say at the present writing. I had no sort of idea what I wanted for a kitchen stove when I began to keep house, and I have not fully made up my mind now. I am pretty sure, however, that I do not like to catch my dress or apron upon the hearth when I am flying past it, either pulling the hearth out upon the floor or tearing my clothing. I like better a stove hearth that lifts out when the ashes are to be taken from beneath it. Since it falls to my lot to sit down beside the cooking-stove sometimes on a cold day when I would warm my feet, and since it is not at all uncommon in winter for the children to come bustling into the kitchen from their play with toes suffering from cold—I like a low hearth. The oven may be full of

bread, and anyhow the hearth is the best place for warming the feet. The high hearth may be more convenient for setting dishes to be kept warm; but dishes on the hearth are usually in the way, especially if you have to draw it out when you would give the fire more air. You may be told that it is unnecessary to draw out the hearth, as there is a slide that may be opened or closed; but possibly the slide will not work at all, and perhaps you must pull out the hearth very frequently to clear away the ashes from before the fire.

I like the stoves with the long, high doors opening the whole front and exposing the cheerful blaze behind the grate. In warm weather these may be kept shut, but on a cold morning we would gladly have them open. Sometimes in the twilight such a stove is almost as good as a fire-place to knit before. I am sick of the stoves that have the fire shut away in the middle where you can not see it at all, nor feel it either until the fire has been kindled a long time. I want a stove with an oven that will heat up quickly, so that gems or potatoes may be baked sometimes for an early breakfast. Never condemn your stove as a bad baker until you are sure that justice has been done it in length of pipe. Our stove stood in a shed or summer kitchen all summer, and I was sorely tried by its slow baking. The same stove was much improved in baking power when another length of pipe was added above the roof. After it was moved into the kitchen, with more pipe and length of chimney, there was a very decided improvement.

Sometimes the draft is bad because the pipe fits into the chimney too loosely, allowing too much air to enter around the pipe. On the contrary, if the draft is too strong, as sometimes in the lower rooms of a high house, or where there is a long straight pipe and chimney, the difficulty may be remedied by making a hole in the pipe or entrance to the chimney.

Another point in reference to the hearth. It should extend under the end or side-door where wood is put in. Even with some first-class stoves

it is a source of almost hourly annoyance to have the ashes and coals dropping out upon the floor whenever the fire is replenished. Dread of this leads to opening the top of the stove for putting in wood, causing wood litter upon the stove and the escape of smoke into the room. Zinc under the stove may lessen the danger of burning up the house, but we do not like to have the zinc littered with coals and ashes.

We must not expect that the smaller sizes of stoves will give equal satisfaction with larger ones. There will be more difficulty on account of too long wood; the end door is necessarily smaller and the fire-box more easily crowded; the top of the stove sometimes fails to accommodate the pots and kettles and leave room to wedge in a coffee-pot; the ashes clog up the draft too quickly and need lifting every morning.

"CHILDREN'S WORK."—Who is going to answer "Susan Mann's" question? May I put in a word? In the first place, I should say that no woman who has "been through the mill" seriously considers the work of small children as *help* in the household. Men sometimes labor long under that delusion. We teach the little ones to work, and we call it "helping mamma," for their own education and in the hope that when practice has made them somewhere near perfect in their tasks they will really be helpers. But if they are genuine children, with the life and buoyancy that belong rightfully to childhood, they do not put their moods upon their tasks long at a time, and it becomes very wearisome to keep reminding and hurrying them. Children are said to be "careless," but who have a better right to be free from care? Little by little we must teach them to carry responsibilities and cares, but a child's face where care sits habitually is a pitiful sight.

A mother who was lately complimented because her boy of ten was "such a little man" about helping her, replied sadly: "He is a good boy, and I don't know what I could do without him, but I feel sad every day because he has to work so. I feel as though I am defrauding him of his childhood. He never can be a child again, and it isn't fair to saddle him now with so many tasks."

Do farmers expect any real work from their small colts and calves? I think that children under eight years of age who do all of the table-setting and dish-washing and sweeping regularly are very remarkable children, and I do not see how one could reasonably require more. I think that a woman who trains her children to do this work while so young ought not to have much other care or labor, because the task of training children to work—the nerve or firmness to hold them straight to the task—is itself so arduous.

SPLIT PEAS.—I see no recipes in the books for cooking split peas without meat. They are generally used as thickening for soups, but they make a nutritious and palatable soup when cooked alone. Like beans, they must be cooked a long time. It is well to put them soaking in warm water at night. In the morning drain off the water and cover them with a good deal of fresh water, as they absorb a great quantity while swelling and cooking. Cook them slowly the whole forenoon; and if the peas are good they will be *entirely broken up* when the soup is done. Season it with salt, also with cream or milk and butter. I have had peas which it seemed impossible to cook, and peas that had a flavor of all sorts of barn fodder; but good peas are much liked in our family. The most common mistake in cooking them is not giving them time enough. If I cooked them with beef-soup I should give them much more time than the recipe-books say, for peas that, so to speak, have "dissolved" in cooking are far better than those mashed through a colander.

DRIED PEAS.—Any good peas (minus insects) well cured are good for making soup. Wash them, soak them, and cook them the same as split peas. These, however, should be strained to free the soup from the skins. Split peas have had the skins removed by machinery, which, of course, caused them to split.

PEARLED BARLEY.—This makes an excellent thickening for a meat soup, as you would use rice, only you must cook it two or three hours. It is good boiled alone and eaten with sweetened cream. Boil it about three hours.

ROAST DUCK.—Wild duck often has a strong flavor when cooked which is very disagreeable to many. Marion Harland speaks of it as a "fishy flavor," and says it may be remedied by parboiling the dressed duck with a raw peeled carrot or an onion inside. The onion imparts some flavor, and should not be used unless there is onion in the dressing. A more important point is to remove the oil-sacs from the back of the fowl. A very important point (with all poultry, and indeed with all animal food) is the removal of the entrails.

A very nice way to stuff and roast a duck is the following: For a moderate-sized duck take three potatoes, a quarter of a good-sized onion chopped very fine, half a tea-spoon each of summer savory and marjoram, a table-spoonful of butter, and a little pepper and salt. Put it, with a piece of butter, in the dripping-pan in the oven, and baste with the butter once in every ten minutes. Roast thoroughly for an hour, or more if the duck is old and large. Mrs. Beecher says: "If too much cooked, a duck becomes very dry and tasteless."

This mode of roasting makes no allowance for gravy. That is made of the water in the bottom of the dripping-pan (after all of the fat has been removed) thickened with flour and the boiled and chopped giblets.

SOUTHERN MODE OF BAKING SQUASH.—I am told that "nothing can be gooder" than the following mode of baking winter squash: Cut open the squash, and after scraping each half put a table-spoonful of butter and a table-spoonful of sugar in each. Bake slowly, and baste the inside so that the sugar and butter may permeate it evenly.

I give the recipe as it was given me. I have always thought that squash should be put into a hot oven and baked rather fast (though it takes a good while to bake it thoroughly, and I think it is often served when little more than half done), as much of the sweetness of the squash seems to escape by slow baking. It hardly seems fair treatment of anything so good as a Hubbard squash (to say nothing of economy) to allow it to waste its own natural sweetness on the desert air of the oven, and then attempt to supply the loss by imparting the sweetness of sugar. But you can try it.

Christmas Toys.

It has usually been my lot to have to send by others for the toys I would give my children, and I know that many other mothers are similarly situated. I went through a large toy-store the other day in search of hints to give parents who can't think what in the world to give their children next Christmas.

There is such a great variety of toys that every one ought to get suited. It may seem an easy thing to select from so many, but really it is a matter that calls for considerable judgment. "Christmas comes but once a year," and I think its presents should be very carefully chosen if possible. I should like to give about three presents—perhaps four—to each girl and boy. Or I would like to have each girl and boy receive as many from different friends. One present for any average child under twelve should surely be something that would make a noise—a trumpet, a mouth-organ, a jew's-harp, a penny whistle, a toy mocking-bird, a toy accordion or fiddle, a squeaking ball or bird or mewing cat, possibly (O could I endure the racket!) a drum. Perhaps the drums and trumpets ought to wait for summer time. But we must consider our neighbors' ears too. The mouth organs ought to give some pleasure to everybody but the one "who has no music in his soul, and is not moved by concord of sweet sounds." The chords are usually pleasant, and a mouth organ is better than no music in the house. Warn the little ones not to break off the metal side-casings, as the

organ goes to ruin very soon after that happens. I wish now that I had had ours riveted together again when one side first got loose. A nice thing for baby is a soft rubber ball with a squeak inside. Babies always like balls, I notice. Froebel was right in making that the first of his series of gifts. How the little ones beg to take eggs in their hands. I see that china nest-eggs have their place in toy-stores, and rightly too, for they suit babies admirably.

Having made sure that the instinctive craving of every child of nature to make a noise in the world has some gratification, if only by a penny whistle, I would wish to have it receive some present of an industrial character, some small implement to play at work with. All kinds of building and kindergarten blocks may come under this head. Dolls too—why not? Isn't the care of children the biggest job—though perhaps the most pleasant—that mothers have to do? I should not choose for my little girls the dolls with ear-rings and brooch. Some sweet child-face and curly head would be a better educator of its taste—for a child's taste is cultivated by all its playthings. For this reason I would dress the dolls simply, in pretty child-frocks rather than in fine-lady costumes. There are very sweet faces among the *bisque* doll heads, quite preferable to the shining china heads, I think. Two "indestructible" or leather-headed dolls have done the hardest kind of service in our family for a year past. They are more durable than even the rubber dolls, which mischievous children cut and bite with their teeth. I have seen none of these so pretty as the *bisque* heads, and they grow pale if subjected to baths, but it seems impossible to break them. Fire alone can utterly ruin them, serving them as it serves other leather.

Sets of dishes are much prized by little girls. They are only "tea sets," and the plates and knives and forks must be supplied separately. Very small china sets, suitable for beginners in doll house-keeping, can be bought for twenty-five cents. These are the cheapest, I believe, but beautiful sets sometimes cost many dollars. Even elegant real silver sets are sometimes presented to wealthy children. We won't do so by our children, however, not only because we can't, but because it seems so cruelly selfish when thousands and thousands of little children have scarcely a plaything at all.

The doll-houses with their furniture do not so clearly come under the head of industrial implements, since they are merely the apartments of the dolls. I would give a great deal more for the little old tool-house where I was once allowed to keep house for my dolls, and which was large enough for me to rock my babies to sleep and sit down to meals in with a few little friends at my small table, than for any costly doll-house I have seen. But where children can have almost everything that they want doll-houses work in nicely. Some little cubby under the stairs, or a corner of mamma's room, may be almost a paradise for a little incipient woman with domestic tastes. Here will accumulate, one by one, the doll, the doll's bed and box of clothes, the dishes and their shelves, the wash-board and tub, the flat-iron and its stand, with a little holder and ironing-sheet, the broom and dust-pan, etc. Dear little housekeepers! Their implements should be large enough, to be of real use to them, and for this reason I should prefer to get one or two at a time, rather than a whole "kitchen" with all sorts of very small implements which only dolls can use with any satisfaction.

Tool-chests for the boys (and for girls, too, if they show a desire for them) give pleasure and profit. I fancy, however, that the money goes farther and pleases more if used for separate tools—first a hammer, afterwards a knife, then a gimlet, and other tools as the little workman's needs require. Half a dollar will buy a small saw or one of the nice fifty-foot tape measures that carpenters use—two things which the boys I know covet greatly. Children with artistic tastes will prize paint-boxes and sets of drawing instruments. The latter can be bought for a dollar or a dollar and a half, and the cheapest paint-boxes are only 10 cents.

The carts and wheel-barrows are very delightful

and useful. By "useful" I mean simply that they make children happy—the best use of a plaything after all, however many other uses it may have. If they can be happy in what seems to them industry, instead of mere amusement like spinning tops, so much the better for their whole development. The tops have their place though, and so do all the jumping-jacks and other funny things.

What crowds of them there are—steamboats, trains of cars, fire-engines that throw water a good many feet, dancing dolls. It is impossible to enumerate all these things, so we will hasten to another department—that of the games and puzzles. There are jack-straws and dominoes and checkers, all useful intellectually as well as socially. There are various games of cards more or less profitable: the game of authors, game of poets, game of Dickens, historical cards, game of artists, etc. There are panoramas (seventy-five cents apiece)—two of which pleased me particularly. One is a panorama of American history—a series of colored pictures of early American history arranged on rollers in a case. There is a large poster or advertisement of this show in the box, and a card of forty little entrance tickets, and a copy of a short, lively lecture about the pictures. The other one is about the late war of the rebellion, and is got up in the same style—very captivating to most children old enough to understand it.

The third Christmas gift which I want every child to have is a good book suited to its years and tastes. The fourth should be something pleasing to the palate—not candy for my children, or only a very small quantity. A fine apple or a fresh popcorn ball is better. Of course, I do not advise that more than one present be given, or more than one nice present, but I see the special use and acceptability of all these things. I want children to have plenty of playthings, but they should learn to be pleased with simple and inexpensive things. The penny cast-iron toys please small children—spades, axes, hammers, rakes, etc. Sleds! O yes! for girls as well as boys—but we must stop somewhere.

RELL.

Cake and Doughnuts.

The following come from a Connecticut lady, Mrs. H. S. P., who has tested them and says that they are thoroughly practical:

CREAM CAKE.—Two eggs; one cup of sugar; one cup of cream; two cups of flour; one tea-spoonful of cream-of-tartar; one tea-spoonful of soda.

LOAF CAKE.—Three eggs; one cup of sugar; half a cup of butter; one cup of cream; one tea-spoonful of soda; one cup of raisins; one cup of currants; flour and nutmeg.

CREAM COOKIES.—One egg; one large cup of sugar; one cup of cream; one half cup of sour milk; half a tea-spoonful of soda; flour enough to roll.

RAISED CAKE.—Two cups of raised dough; two eggs; two cups of sugar; one cup of butter; one cup of sweet milk; one tea-spoonful of soda; two cups of flour; one cup of fruit; cinnamon, cloves, and nutmeg. To be put into the oven at once.

COCOA-NUT CAKE.—Two eggs; beat the whites to a stiff froth; one and a half cup of sugar; half a cup of butter; half a cup of sweet milk; one tea-spoonful of cream-of-tartar; half a tea-spoonful of soda; two and a quarter cups of flour; half a cup of cocoa-nut; flavor with lemon.

MINUTE SPONGE CAKE.—Beat three eggs two minutes; add one cup and a half of sugar; beat two minutes; one cup of flour and one tea-spoonful of cream-of-tartar; beat one minute; add half a cup of cold water with half a tea-spoonful of soda and a spoonful of extract of lemon; beat one minute; add one cup of flour; beat one minute. *Splendid.*

DOUGHNUTS.—Two eggs; two cups of sugar; two cups of sweet milk; a little salt; five pints of flour, with two even measures each of acid and soda of Horsford's preparation mixed well in the flour.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

ABOUT A PIECE OF LIMESTONE.

Now, my young chemists, having found your limestone, what shall the next step be? "Young chemists," you will say, "we never thought of being chemists."—Do you know what chemists do? I do not mean that kind who sell pills and have blue bottles in their shop windows; but chemists that have made great discoveries, such as Faraday, Davy, and Liebig, who are now dead, and Johnson, Gibbs, Smith, and many others who are living and working. They spend their time in trying to find out all about things, just as you want to find out about the limestone. When a strange substance is brought to one of these great chemists he does just as you have done with the piece of limestone; he looks at the color, tries how hard it is, tries if it has any taste—in short, first tries his senses upon it. Then if he wishes to know more about it he does just what I wish you to do with the limestone. He begins to ask it questions. "Ask it questions?—the idea of asking a stone questions!" Do not laugh, but wait until I explain. You put the vinegar question to the limestone last month, and the answer was—bubbles. Now let us put another question: "What effect has heat upon limestone?" To get an answer to this you must break a piece up into small fragments and put some of them in a strong coal fire, where they will get not only red hot, but white hot. The bits should not be larger than a hazel-nut or a small walnut, and be placed where the fire is very hot. Do not be in a hurry for the answer, for you must wait for three or four hours, according to the kind of limestone, the size of the pieces, and the hotness of the fire. I have no doubt that those who burn wood instead of coal can make the experiment quite as well by placing their bits of limestone among the live coals on the hearth, but they may have to keep it there longer. When the limestone has been cooked for three or four hours you may take it out and place it on the stove hearth to cool. What has been the effect of heating it? If the limestone had any shiny particles in it before heating you will not see any now, but the whole will look dead white. The pieces will be much lighter than before, and if you weighed them before and after heating you would find that they had lost a large share of their weight—nearly half; or to speak more accurately, forty-four hundredths. That is, if a hundred pounds of limestone were thoroughly heated in a strong furnace there would be but fifty-six pounds of it left. The pieces are just as large as they were before heating, but very much lighter. The heat has driven off something. "What is it?" We will look into that after a while; but for the present we will not trouble ourselves about what is gone but consider that which is left. When your bits of burned limestone are quite cool you may proceed to examine them. I can not advise you to try your senses upon the stone after it has been burned, but you may try one of the abundant things—that is water. Let a few drops of water fall upon one of the pieces placed in a saucer—only a few drops. They sink in at once. In a few moments more put on a few drops more. These will probably hiss, steam will arise, the lump will swell and crack and finally fall apart, and you will have only a dry powder; perhaps more drops of water may be added and the powder take it up and yet remain dry. Now you will note two things: The addition of water to this burned limestone produces heat, and though you add a considerable quantity of water the stone falls to pieces and remains dry. You perhaps hardly need to be told that the heat has converted your limestone into lime, and that you have been doing on a small scale what is done in lime-burning in large kilns, where many tons of limestone are subjected to strong heat and made into lime, a substance so useful in many ways. You have seen masons preparing mortar; they throw water upon the lime; a great heat is produced, but as they wish the lime as a sort of paste they use more water than is needed to make it fall to pieces as a dry powder. You can try the experiment with the lime you have burned yourselves or with a piece of mason's lime. By dropping the water upon it carefully you will find it to grow very hot, and although much water has been added the lime remains perfectly dry. This is a most wonderful thing, and I wish you to look at it closely. I do not know that I can explain it better than by saying that lime and water have a very strong liking for one another, or attraction, and that the combination of the two is a solid, although one of this singular partnership, water, is a liquid. If you had the means to weigh accurately, you would find that 28 parts or pounds of lime would take up or unite with

9 parts or pounds of water and yet remain dry. The water departs from its liquid state and becomes a part of a solid. I could tell you of many other cases in which water becomes a part of a solid. Alum, for instance, is perfectly hard, and is nearly half of its weight water, as you can see by putting a piece upon a shovel and holding it over the fire, when the water will be driven off as steam. But we are talking about lime, and not alum. When lime is freshly burned it is called *quick-lime*, which means live or active lime. When you have put upon it all the water it will take up it is said to be *slaked*—that is, its thirst for water is slaked. The masons call it "slacked." When lime is exposed to air for a considerable time it falls to pieces from taking up moisture from the air, and is called *air-slaked* lime. Slaked lime being

pose should be rather firm, and the colors bright and strong. Bookbinders use paper of this kind, and so do printers. It is well to select colors that have a strong contrast. Almost any color will make a good contrast with white; but when you come to green, purple, orange, and such colors, you must use some taste in selecting those that will look best together. Thus, yellow and green will look very dull, while red and green will be bright. So red and purple will not do as well together as yellow and purple. Much of the beauty of this woven paper-work depends upon its neatness; hence the strips should be cut with great care all of the same width. The weaving is a simple process, and only requires patience, and by passing the slips over and under so that the one or the other color shall be uppermost a great number of

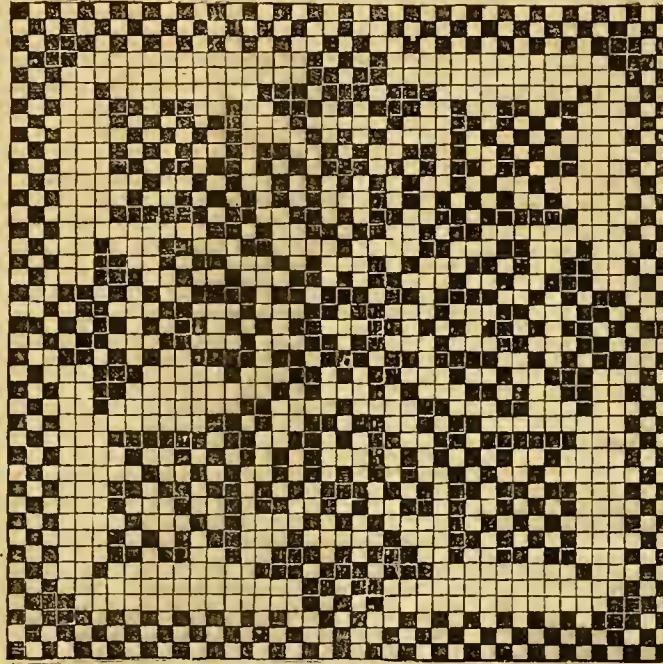


Fig. 2.—PAPER MAT.

a compound of lime and water the chemists call it *hydrate* of lime. The Greek word for water, which we may write *hutor*, comes in play in many of our English words referring to matters in which water is concerned; thus we have hydraulics, hydrant, etc., and combinations of other substances with water are called by the chemists *hydrates*, and our lime when combined with water is *hydrate* of lime. "But the heat given out?" I was sure you would want to know about that—and that is the most difficult thing to explain. Let us try. If you have a piece of solid water—ice—you have to heat it to make it liquid water. If you have liquid water that you wish to make solid, or ice, you have to take away heat from it, or cool it. A certain amount of heat is necessary in order that water shall remain in a liquid state. Well, when we put the water and the lime together they like one another so much that they will unite and form a solid compound—the slaked lime; and the heat having nothing to do any longer in keeping the water liquid just escapes, and the lime becomes very hot. How great this heat is you see when the masons slake a large quantity of lime, and it is shown more strikingly still when a vessel loaded with

patterns may be made. In figure 1 is shown a number of simple patterns which will serve for practice in order to get an idea of the way in which it is done, and in figure 2 is a design for a mat completed. This design in fig. 2 is only one of many that an ingenious person can make. A neatly-made little mat will be a very nice thing for a Christmas present, for most persons value a thing, no matter how simple it may be, if made by the hands of the giver, more highly than they would a more expensive gift bought with money. After all, it is the loving thoughtfulness that goes with the presents that makes them prized by all sensible persons.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

I am composed of ten letters. A carpenter stopping at an 5, 10, 6 sharpened his 3, 2, 1 by 7, 2, 3 light. After finishing his work he drank a little 7, 5, 10 out of a 8, 5, 6 cup, and then put on his 4, 2, 8 to 7, 9 out. My whole was where he lived.

HARLISON SNYDER.

DIAMOND PUZZLE.

The center letters—horizontal and perpendicular—pertain to the culture of flowers.

1. The commencement of war.
2. A fluid.
3. Undaunted.
4. Circuitous.
5. A model.
6. Reliable.
7. A subject of consideration with farmers.
8. A delightful employment for ladies.
9. Not governing.
10. Brighten life.
11. The occupation of many a gentleman of leisure.
12. A region.
13. A girl's name.
14. A conjunction.
15. Part of an egg.

WM. L. E., JR.

RIDDLE.

My home is the whole globe. I sometimes live in the air, sometimes in the clouds, sometimes in the bowels of the earth, and sometimes on the surface. Wherever I go there are some who welcome me and some who dislike me. Children can not live without me, and yet I am of no use to them. Sometimes I betoken sorrow and sometimes happiness. And now I ask you to find my name although I am invisible. CHS. W. SUELMIRE.

CHEMICAL PUZZLE.

I am four-fifths of what you daily breathe, The other fifth within your lungs I leave; Starvation in young plants I keep away; From fiercest fire I pass unharmed away.

R. T. ISBESTER.

ANAGRAMS.

- | | |
|--------------------|--------------------|
| 1. Let parson. | 6. Eden, Master N. |
| 2. Leaving rest. | 7. See plant burn. |
| 3. Slim cheap cod. | 8. I a fit leaf. |
| 4. Able scion. | 9. Fault in foe. |
| 5. In fact in gem. | 10. But not rice. |

Paper Weaving.

We have seen very pretty mats woven with strips of paper of different colors. The paper chosen for this pur-



Fig. 1.—PATTERN FOR PAPER MAT.



[COPYRIGHT SECURED.]

THE MORNING PAPER.—Drawn and Engraved for the American Agriculturist.

ALPHABETICAL ARITHMETIC.
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W W E D
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W D O

CONCEALED SEAS, OULES, DAYS, ETC.

1. O sis, I am going to school next Monday week.
2. Bab lacks only one block of having a hundred in her quill.
3. I could not tell whether it was the clown or the horse that knocked over the stool.
4. It was a new hit, Elsie said, but I did not think much of it.
5. Did you see Ben gallop past here this morning?

ALICE E. BROWN.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

- ANAGRAMS. — 1. Acknowledged. 2. Transgressed.
3. Ordinances. 4. Dispersion. 5. Impoverished.
6. Prophesied. 7. Tabernacles. 8. Inheritance.
9. Phenomena. 10. Circumstances.

CROSS-WORD.—George Washington.

ALPHABETICAL ARITHMETIC.—

282970543(3441

(Key: Boiled mnsh.)

PI.—Do good to your enemy that he may become your friend.

NUMERICAL ENIGMA.—The Innocents Abroad; or the new Pilgrim's Progress.

RIDDLE.—Page.

AUNT SUE'S NOTICES TO CORRESPONDENTS.

WILL.—Your square word began finely but ended ingloriously: a full stop will not quite do for a letter. Try again.

FRED H. B.—Perhaps you failed to say whether your contribution was intended for the *Hearth and Home* or for the *Agriculturist*. I can only guess if I receive no hint as to which paper the puzzle is meant for.

Thanks for letters, puzzles, etc., to Ambrose M. S., M. G., Le Roy, the O. P. A., Martin B. Weiske, Frank P., Ida M. C., and Frank L. S.

Aunt Sue's address is Box 111, P. O., Brooklyn, N. Y.

The Morning Paper.

Here is a picture that will please youngsters. All children like dogs, and we are not quite sure but they like mischievous dogs the best. If they do, they will like this dog, for he is certainly one of the roguish sort. The scene is evidently in the suburbs of some city or town where the carrier leaves the paper every morning. Those who are accustomed to get their paper regularly every morning feel quite annoyed if it does not come at the regular time. The good old gentleman was evidently not the only one upon the look-out for the paper this morn-

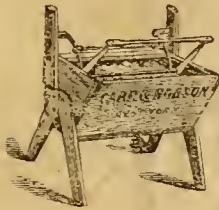
ing. Zip had seen the paper morning after morning fly from the carrier's hands to the door-step, and then soon after picked up by some one from the house. "What is this?" he thought—that is if dogs do think, and some of them seem to—"here must be something good, or the people in the house would not be so anxious to get it. If it is good for them it must be good for me, and I will try what it is like." How Zip carried out his intentions about the paper, and the consternation of its rightful owner when he discovered the mischief are so well told by the artist who drew the picture, that we need not say anything more about them. Did you ever notice how very food some dogs are of playing with paper? They like to play with it and tear it in pieces, probably just for the fun of hearing it rustle. It is not well to encourage dogs in this; though it seems fun at the time it may lead to mischief. Some time, when no one is by to watch, the dog may amuse himself with a piece of paper that is of great value, and thus make trouble. We must tell you about a dog we used to know whose name was not Zip, but "Tip." Tip's master had taught him many tricks, and a more intelligent dog we never saw. The master, an exceedingly neat man, was in a bank, which was nicely carpeted and kept in the best possible order. Tip had been trained to pick up every scrap of paper that the customers of the bank and others dropped upon the floor and bring it to his master, who had only to say "paper" and off the dog would go in search of the stray piece. He knew the word paper so well, and what it meant, that when outside of the bank if his master or any one who knew Tip well would say "paper" to him, he would go off and hunt and not return until he had found a piece of paper of some kind, which he would bring with evident pride and satisfaction.



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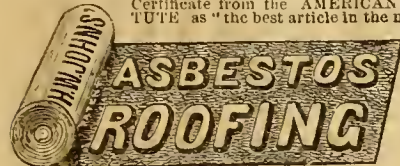
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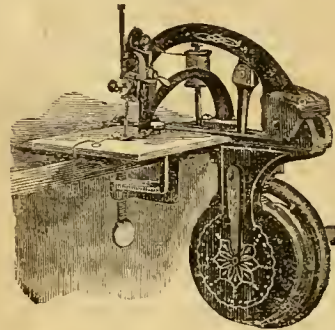
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80	Any Two Back Volumes do.	\$8 00	16	50	8	25	9
—(Each additional Volume at same rate.)							
81	\$10 Library (Your Choice)	\$10 00	18	58	9	29	10
82	\$15 Library do.	\$15 00	24	83	12	41	14
83	\$20 Library do.	\$20 00	31	106	16	53	18
84	\$25 Library do.	\$25 00	38	125	19	63	21
85	\$30 Library do.	\$30 00	44	144	22	72	25
86	\$35 Library do.	\$35 00	50	162	25	81	28
87	\$40 Library do.	\$40 00	56	177	28	89	31
88	\$45 Library do.	\$45 00	62	192	31	96	34
89	\$50 Library do.	\$50 00	68	207	34	104	38
90	\$60 Library do.	\$60 00	80	237	40	119	44
91	\$75 Library do.	\$75 00	100	282	50	141	53
92	\$100 Library do.	\$100 00	125	360	63	180	70
93	A Choice of Good Books. (See Description.)						

Every Premium article is new and of the very best manufacture. No charge is made for packing or boxing any article in our Premium List. The Premiums, Nos. 2 to 8, 27 to 33, 55 to 78, and 81 to 93, inclusive, will each be delivered FREE of all charges, by mail or express (at the Post-office or express office nearest the recipient) to any place in the United States or Territories.—The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance desired. See Description of Premiums on Next Page.

Full Descriptions

of our Premiums are given in a previous number, and will be mailed free to applicants. We have room in this paper only for the following **Descriptive Notes**:

No. 1. — Moore's Floral Set.—This is a beautiful Premium—a complete set of **Ladies' or Children's Garden Tools** for the cultivation of flowers, consisting of a Floral Hoe, Spade, Fork, and Rake. They are made of the best steel and iron, with finely polished hard-wood handles, light, durable, and highly finished, and each set inclosed in a box. They will be found very convenient in the garden and greenhouse, and are pleasing toys for the little folks. Made by the **Moore Manufacturing Company, Kensington, Ct.**

Nos. 2, 3, 4.—Gold Pens: with ever-pointed Pencils, in extension, coin-silver cases.—Premium No. 2 contains the best No. 4 Gold Pen; and No. 3 the best No. 6 Gold Pen, which is the same style, but larger. No. 4 contains No. 7 Gold Pen, in Gold-tipped Ebony Holder. Each pen will be sent in a neat leather case by mail, post-paid. These pens are made by **Geo. F. Hawkes, No. 66 Nassau St.**, and have obtained an excellent reputation. We have known the maker and his goods for many years, and can recommend them.

No. 5.—Ladies' Fine Gold Pen, in Rubber Case, Gold Mounted, with Screw Extension, and Gold Ever-pointed Pencil. A beautiful present for a lady teacher or friend. Same maker as No. 2.

Nos. 6, 7.—Paragon Patent Revolving Pencil.—This is a beautiful Pocket Pencil, which is extended or closed by pulling or pressing the head. They are made with great care, and every Pencil warranted to work perfectly. They are gold-plated, and will last for years. We offer two patterns, one for ladies, with ring for chain, at \$1.50 each, and one of heavier and firmer plate, at \$3.00. Same maker as No. 2.

No. 8.—Payson's Indelible Ink, and Briggs's Marking-Pen Combination.—Payson's Indelible Ink is too well known to need further commendation. It is almost indispensable in the family. Briggs's Marking-Pen has been before the public for fifteen years, and is justly celebrated for all kinds of marking, and particularly for writing upon coarse fabrics. The Pen and Ink are put up in a neat case, being thus portable, always ready for use, and protected from loss or injury by evaporation or breakage.

No. 9.—Cake Basket.—A new pattern, oval-shaped, nicely chased—a very taking, useful, and beautiful table ornament. This, with other articles that follow, is made by the **Lucius Hart Manufacturing Co., of Nos. 4 and 6 Burling Slip, New York City**, and is warranted by them to be of the best triple plate. Mr. Hart, "the veteran Sunday-school man," was engaged in the same place and business for nearly a quarter of a century. We have known him and his work for many years, and have taken pleasure in commending and guaranteeing its value to be as represented. We believe the Company which bears his name is fully sustaining his reputation. The amount of silver upon plated ware depends wholly upon the will and integrity of the manufacturer. We could give nearly as good-looking plated ware for less than half the money.

No. 12.—One Dozen Teaspoons.—

No. 13.—One Dozen Table-Spoons.—These are "figured tips," Olive-leaf Pattern, all of the same metal, plating, etc., and from the same makers as No. 9. They are far cheaper than anything we have found at half the price, and are well worth working for.

No. 14.—One Dozen Table-Forks.

—The same description and remarks apply to these as to No. 13. We select as premiums only such articles as we can warrant in quality and price. All these articles come from the **Lucius Hart Manufacturing Co.**

No. 15.—Child's Cup.—A beautiful gift for the little one-year-old. It is made by the **Lucius Hart Manufacturing Co.** Triple-plated on the outside and gilded on the inside. It never breaks, and will last for many years—indeed, be a life-keepsake.

No. 17.—Child's Carriage, or Perambulator.—An elegant carriage, handsomely finished, upholstered with reps, has full plate tinned joints, handle tips, side lights, dash rail, panel body, and carpet on the bottom. These carriages are from the well-known manufacturer **C. W. F. Dare, 47 Cortlandt St., New York.**

No. 19.—Doll's Cottage Chamber Set.—A most attractive gift for a little girl. Eight pieces of furniture prettily painted: Bedstead (size 11½ x 18 inches), bureau, table, commode, towel-rack, two chairs, one rocking-chair. From **C. W. F. Dare, 47 Cortlandt St., New York.**

No. 20.—Crandall's Improved Building Blocks furnish a most attractive amusement for children. Churches, Dwellings, Barns, Mills, Fences, Furniture, etc., in almost endless variety, can be built with them, and the structures remain so firm as to be carried about. For developing the ingenuity and taste of children they are unequalled. The Blocks are put up in neat boxes, accompanied by a large illustrated sheet giving various designs of buildings, etc. This is one of the most successful toys ever invented.

No. 21.—Crandall's Masquerade Blocks.—These are put up in boxes, the blocks in each of which will make, by various combinations, 300 different pictures in brilliant colors. They are not injured by washing, and afford endless amusement for children. They are beautiful gifts for the little ones.

No. 22.—Knives and Forks.—These have ebony and metal handles, manufactured by a patent process which unites them so firmly to the blades that they never work loose, and are rendered hot water-proof. The knife blades are silver-plated. Made in the best style by the **Woods Cutlery Co., 55 Chambers St., New York.** For this Premium we will give either the Table, Medium, or Dessert size, as may be specified by the recipient; six knives and six forks, or twelve knives without forks.

Nos. 23, 24, 25.—American Table Cutlery.—We are glad to be able to offer really good articles of American manufacture, such as are competing successfully with the best foreign make. **Messrs. Patterson Bros., 27 Park Row,** who supply us with these articles, are also importers of English goods. They recommend these Knives, manufactured by the **Meriden Cutlery Co.,** as equal to any Cutlery in the market, and their recommendation is a guarantee wherever they are known. We offer two kinds of Knives, and three sizes of each kind. No. 23 have Rubber Handles, which are actually boiling-water proof, so that, if they were accidentally to remain in it for several minutes, or even hours, they would not be injured. The Blades are of the best steel, and warranted. Dessert size, with Forks, sold at \$15.00. For 24 subscribers at \$1.50, or 80 at \$1, we will give either the medium size or the table size, sold at \$16.00. No. 24 have Ivory Handles, are selected with great care, have Steel Blades, and are beautiful goods. Dessert size, with Forks, sold at \$20.00. For 33 subscribers, at \$1.50, or 110 at \$1, we will send the medium size, sold at \$22.00. For 35 at \$1.50, or 116 at \$1, we will send the Table size, sold at \$23.00. The Forks, which accompany these Premiums, Nos. 23 and 24, are made of genuine Albata, and warranted double-plated with coin-silver. These Forks are furnished to us by **Messrs. Patterson Bros.** The Carving-Knife and Fork are made by **The Meriden Cutlery Co.,** with the best Ivory, balanced Handles.

Nos. 27, 28, 29, 30.—Pocket Knives.—**HERE'S FOR THE BOYS AND GIRLS!**—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for merely a little effort. These knives are furnished by the **Meriden Cutlery Co., 49 Chambers St., New York,** whose work is equal to any done in this country or Europe. No. 27 is a neat, substantial Knife, with three blades and buck-horn handle. No. 28 is a still finer article, with four blades and pearl handle. No. 29 is an elegant Knife, with five blades and shell handle. No. 30 is a Lady's Pocket Knife, a beautiful article, with four blades and shell handle.

No. 31.—Mutton in Parvo Pocket Knife.—**Boys, Read this.** This is a most attractive as well as useful Premium, from the **Meriden Cutlery Co., 49 Chambers St., New York.** It comprises, in one knife-handle, a large and a small blade, a screw-driver, a saw, a strong hook, a nut-cracker, a brad-awl, a gimlet, a corkscrew, a pointer, a slim punch, tweezers, and, in addition to this, it can be used for various other purposes which will at once suggest themselves to any smart boy or man. It is a pocketful of tools weighing but two ounces. The knives will be sent anywhere in our country, post-paid.

No. 33.—Extra Early Vermont Potato.—This remarkable potato is a seedling raised in 1867 from a seed-ball of the well-known Jackson White. It is supposed to have been fertilized from the Garnet Chili, as it resembles many seedlings of that variety. For five years the "Vermont" potatoes have been grown side by side with the Early Rose, both under the same treatment, and have proved seven to ten days earlier than that favorite sort; they are more productive, fully equal to the Early Rose if not superior in quality, flesh very white, dry, and floury, excellent keepers, and in every way a most promising variety. We have made arrangements with **Messrs. B. K. Bliss & Sons, 23 Park Place, New York,** to supply us with the genuine article, to go by mail, post-paid, to any part

of the country. They should go out before freezing weather, but when too late for this we will keep them until warm enough to mail them in the spring. This Premium can only remain open while the supply lasts.

No. 40.—Doty's Improved Clothes Washer, with the Metropolitan Balance Weight. Over seventy-five thousand families in the United States are using the Doty Washing Machine, and we believe the improved machine has no superior. The "help" asset and like it. Send for descriptive circulars to **R. C. Browning, 32 Cortlandt St., New York,** or to **Metropolitan Washing Machine Co., Middlefield, Ct.** It goes cheaply by freight or Ex.

No. 45.—A Good Watch.—The Watches made by the **American Watch Co., Waltham, Mass.,** have peculiarities of excellence which place them above all foreign rivalry. The substitution of machinery for hand labor has been followed not only by greater simplicity, but by a precision in detail, and accuracy and uniformity in their time-keeping qualities, which by the old method of manufacture are unattainable. A smoothness and certainty of movement are secured which proceed from the perfect adaptation of every piece to its place. The extent of the Waltham establishment, the combination of skilled labor with machinery perfect and ample, enable them to offer watches at lower rates than any other manufacturers. Their annual manufacture is said to be double that of all other makers in this country combined, and much larger than the entire manufacture of England. The mechanical improvements and valuable inventions of the last fifteen years, whether home or foreign in their origin, have been brought to their aid, and the presence of nearly 800,000 Waltham Watches in the pockets of the people is the best proof of the public approval. We offer a Silver watch, jeweled, with chronometer balance, warranted by this Company as made of the best materials in the best manner, and in pure coin-silver "hunting" case; weight 3 oz. This watch we offer as one of our Premiums, with the fullest confidence. Upon the movement of each of these watches will be engraved, "AMERICAN AGRICULTURIST. MADE BY THE AMERICAN WATCH CO., WALTHAM, MASS."

No. 46.—Ladies' Fine Gold Watch.—This elegant Premium will delight our friends who may receive it. Our arrangement with the **American Watch Co.** (see No. 45 above) includes these beautiful gold watches. They are full-jeweled, in 18-carat "hunting" cases, warranted to be made of the best materials, and possessing every requisite for a reliable Time-Keeper. Upon the movement of each Premium Watch will be engraved "AM. AGRICULTURIST. MADE BY THE AM. WATCH CO., WALTHAM, MASS."

No. 48.—Double-Barrel Gun; OR FOWLING PIECE.—These guns are the genuine London "Twist" barrel, Patent Breech, Bar Lock, ebony ramrod, and in all respects desirable. Their caliber and length of barrel vary, and may be ordered to suit the kind of shooting to be done. They are furnished for this Premium by **Messrs. Cooper, Harris & Hodgkins, 177 Broadway,** well known as one of the most reliable and best houses in their line of business, and they highly recommend this particular gun, and guarantee it in every respect. It is from one of the oldest and most favorably known English manufacturers. The price is not put on in fancy carving and plating for show, but in the gun itself. This Premium includes Gun, Powder-Flask, Shot-Pouch, and Wad-Cutter.

No. 49.—Remington's Sporting Breech-Loading Rifle.—The Rifle offered as this Premium has a 30-inch steel barrel, and can be of any weight from 8 to 12 lbs., and of any caliber from $\frac{27}{100}$ to $\frac{40}{100}$, as may be desired. Ammunition is extra, and at prices varying in accordance with the caliber. These rifles are manufactured by the noted firm of **E. Remington & Sons, Nos. 281 and 283 Broadway, New York,** whose reputation is world-wide, and who stand in the front rank of manufacturers of fire-arms.

Nos. 81 to 92.—Good Libraries.—In these premiums, we offer a choice of Books for the **Farm, Garden, and Household.** The person entitled to any one of the premiums 81 to 92 may select any books desired from the list of our books published monthly in the *American Agriculturist*, to the amount of the premiums, and the books will be forwarded, Post or Express paid. Let the farmers of a neighborhood unite their efforts, and through these premiums get an agricultural library for general use. See Table List of Books in advertising columns.

No. 93.—General Book Premium.—Any one sending 25 or more names, may select books from our list to the amount of 10 cents for each subscriber or sent at \$1; or 30 cents for each name sent at \$1.20; or 60 cents for each name at \$1.50. This offer is only for clubs of 25 or more. The books will be sent by mail or express, prepaid through, by us. See List as in No. 84.

OUR SPECIAL PREMIUMS!

TWENTY FARMS TO BE GIVEN AWAY!

SECURE A GOOD HOME,

AND

SECURE IT NOW.

The Best Chance Ever Offered

FOR

Men and Women,

Boys and Girls

TO

Secure Good Homes!

There are throughout the Eastern and Middle States thousands of people anxious to secure for themselves homes in the West. Many of these have not the means to spare to make a tour of examination of the different portions of the West and then purchase the lands they so much need. To meet the wants of some of these the Publishers of the *American Agriculturist* and **HEARTH AND HOME** have secured a number of farms in one of the most beautiful, fertile, and healthful locations in the great West, and now offer them as Special Premiums to Agents for procuring subscribers to the *American Agriculturist* or **HEARTH AND HOME** or both.

Location of the Lands.

These lands are within the limits of the well-known and popular National Colony, located in Southern Minnesota and Northern Iowa. In beauty, fertility, and adaptability to general agriculture they are not surpassed by any in the United States. The Colony is organized upon temperance principles, and no intoxicating liquors are allowed to be sold within its limits. The St. Paul and Sioux City Railroad is completed, and regular trains are running through the Colony lands, thus affording access to the best markets. The lands are being rapidly settled by moral, industrious, and enterprising people, thus insuring good society, churches, schools, and all the comforts and conveniences of an old-established community. There are now over fifteen hundred families within the Colony limits. This rapidity of settlement insures a rapid increase in the value of property, so that those who secure these premiums will get property not only valuable to-day, but which can not fail to increase in value very rapidly.

How to Get Them.

We can offer eight farms of forty acres each; eight of eighty acres each, and four of one hundred and sixty acres each for subscribers to our publications upon the following terms, viz:

Forty Acres for 310 subscribers to the *American Agriculturist*, at \$1.50 each; or **155** to **HEARTH AND HOME** at \$3.00 each, or **170** to **both** papers at \$4.00 each.

Eighty Acres for 620 subscribers to *American Agriculturist* at \$1.50 each; or **310** to **HEARTH AND HOME** at \$3.00 each, or **340** to **both** papers at \$4.00 each.

One Hundred and Sixty Acres for 1240 subscribers to the *American Agriculturist* at \$1.50 each; or **620** to **HEARTH AND HOME** at \$3.00 each, or **680** to **both** papers at \$4.00 each.

Value of these Lands.

These lands were appraised more than three years ago by disinterested men at **\$8 per Acre**,

and the rapid rate of settlement in the National Colony will increase their value to from **\$25 to \$50** per acre in a very few years. Better lands can not be found anywhere.

Selection of the Farms.

Persons securing any of these premiums will receive a certificate to that effect, with which they may locate the lands themselves, or have some one else do it for them, or we will have it done without charge by a disinterested person, and forward the deed by mail.

Go to Work at Once.

Now we are confident there are among our readers several thousand men and women, boys and girls, who could easily secure one of these valuable premiums. The winter's leisure (too often wasted) employed in this work could hardly fail to secure one of these farms, and thus prove the foundation of a comfortable fortune. Such an opportunity for securing a home has rarely, if ever, been offered before. As will be observed, we offer but twenty of these farms—eight of 40 acres, eight of 80 acres, and four of 160 acres each, and the rule must necessarily be "first come first served." Therefore, those who intend to compete for these valuable premiums should begin at once.

Remember

that one of our beautiful chromos (as advertised in another place) is given to every subscriber.

Any further information concerning these premiums may be had by addressing

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

Chimney Building.—"J. C. C.," Henry Co., Mo. In building a fire-place it is necessary for securing a good draft to contract the chimney at the throat, and allow it to expand again immediately. There is always a circulation of air required to produce a steady upward current, and room for downward currents and eddies must be allowed for. A throat 4x16 will be large enough for an ordinary fire-place.

Beet Sugar.—"Wm. J. C.," Warren Co., Ky. There is no doubt that the sugar beet may be successfully grown in Kentucky; but that the manufacture of sugar from the beets would be successful admits of much question. No plant is more dependent upon peculiarities of soil for the character of its juices, than the sugar beet; and it is found in practice that very trifling differences in soil are sufficient to prevent the profitable manufacture of sugar from these roots. As very large capital is required for the business, it is necessary for experienced men even to experiment carefully before embarking in it. In Europe the manufacture has been of slow growth, and it is improbable that it will be introduced here without many costly failures. Crookes' "Beet Sugar Manufacture," is the only work we know of that treats the subject thoroughly.

Veterinary College.—There is a vast need for competent veterinary surgeons. The suffering caused by inhuman and misguided treatment by ignorant cow and horse-doctors, is in the aggregate immense, and many animals are needlessly sacrificed to this ignorance. Considering the value of the live-stock annually lost by various diseases, readily curable by proper treatment, in consequence of the absolute impossibility of getting any professional help, it would seem that the only veterinary college in the country should be extensively patronized. The New York College of Veterinary Surgeons is the institution referred to. Its winter session has already commenced, and will last until February 1874. The fees for the course of lectures, dissecting, and graduation are \$155.

Contents of Hay Mow.—"H. P.," Boscebel, Wis. A hay-mow 12 x 26, and 20 feet deep, will hold about ten tons of timothy hay, and about eight tons of clover hay. If the hay is properly cured in the field, and put in the mow without being wet, there will be no ventilators needed in the center of the mass.

Piling Manure.—"Some writers," says a correspondent, "tell us to pile our manure; some say spread it in the fall. Please tell me which is right, and why?"—Both are right. It depends on circumstances. We pile manure to induce fermentation; to reduce its bulk; to make it finer; and last, but not least, to render

the plant-food more available, and thus to increase its immediate fertilizing effect. Well-rotted manure will "act quicker" than coarse manure. There need not be any loss from the fermenting process; but nevertheless, in practice, there is often much loss from excessive and too rapid fermentation, and more especially from the rain washing out the soluble matter from the manure. Unless the manure can be properly managed in the heap or pile it is better to apply it directly to the land.

Feed for a Spring Colt.—"A Subscriber," Center Co., Pa. A young growing colt may easily be overfed. Good sound hay can do no harm, but an excess of grain will stunt instead of increasing its growth. Two quarts of good oats a day, with as much hay, of good quality, as it will consume, is all that should be given during the first winter. A two-year-old may receive double this allowance of oats, but no corn should be fed until the colt begins to work, and then only in moderation. A little dry wheat or rye bran might be judiciously given with the oats.

A Kicking Mare.—H. Rea, Jun. Probably the reason your mare kicks is that she has been teased by her drivers until the habit has become confirmed. Thousands of horses are thus spoiled by the very foolish habit of tickling them about the flank indulged in by those who take care of them. Mares are especially nervous and restive at these tricks, which should be severely reprobated upon every occasion. We can suggest no remedy, it is now too late for that; but extreme carelessness should be used in approaching the mare, and she should always be spoken to in a gentle, soothing manner, when going near her.

Potato Digger.—"J. W. H.," Benton Co., Iowa, wants a machine for digging potatoes, cleaning them and lifting them into a wagon as a preventive of back-ache. So far as we are aware, such a machine is not yet invented; although there is one at least which digs, cleans, and gathers them into a box which is carried behind it. The machine, however, needs greater power to operate it than a pair of horses, and unfortunately does not do its work thoroughly.

How Much Timothy Seed per Acre.—"J. A. H.," of New Jersey, writes: "'Walks and Talks' speaks of sowing half a bushel of timothy seed per acre. Here we should think a peck per acre drilled in with the wheat about four quarts too much."—If clover is to be sown on the wheat in the spring four quarts of timothy sown in the fall with the wheat is ample seeding. But "Walks and Talks" was speaking of a clay field too wet to sow to wheat. He proposed to break it up in the fall and summer-fallow it the next year, and then in August or September sow it to timothy alone. In such a case half a bushel of timothy is not excessive seeding. The object is to get the land covered the first season. We have grown a heavy crop of timothy hay the first season after seeding in this way.

Drawing Manure in Winter.—A correspondent at Blue Island, Ill., writes: "During last winter I hauled over 1,000 tons of manure from distillery stables. It contained no bedding, only a little waste hay from feeding. I put it in small heaps on the field, and spread it in the spring as soon as the frost was out. Would it have been better to have piled it in a large heap? I ask the question because I propose drawing more manure this winter." So much depends on circumstances that we can hardly give a satisfactory answer. As a rule, we should either spread the manure on the land as it was drawn out, or else we should pile it in a large heap—not put it in small heaps.

Grass for a Shelter Grove.—"E. R.," Raleigh, N. C. The best grass with which to sow down a grove of shade trees, is orchard grass (*Dactylis glomerata*). Sow in the spring, at the rate of 2 bushels of seed per acre (28 lbs.), upon well harrowed soil, and brush in with a brush harrow. A few pounds (4 to 6) of white clover should be sown along with it. Every spring the leaves should be raked up as soon as the season of frosts is over, and removed. If the soil is light and poor, a dressing of guano, hen manure, or fine barn-yard manure would be a great help.

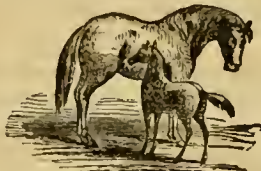
Stifle Lameness.—"M. W.," Clearfield Co., Pa. Lameness from a kick in the stifle joint of a year's standing will be a difficult matter to cure. The treatment depends so much upon the present condition of the injured joint, that without knowing it no recommendation can be given. No harm and possibly good may result in applying cooling tonic washes, as salt and water, followed by decoctions of oak bark.

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Published by ORANGE JUDD COMPANY.

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By S. D. and B. G. BRUCE.

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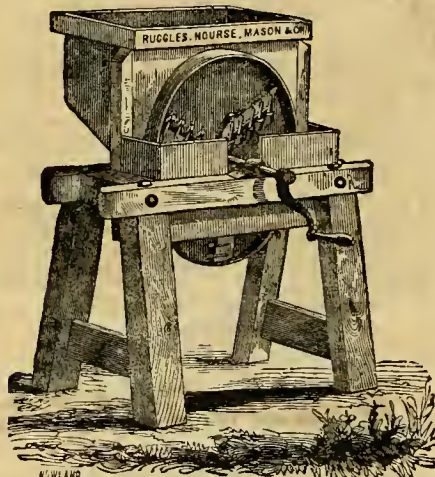
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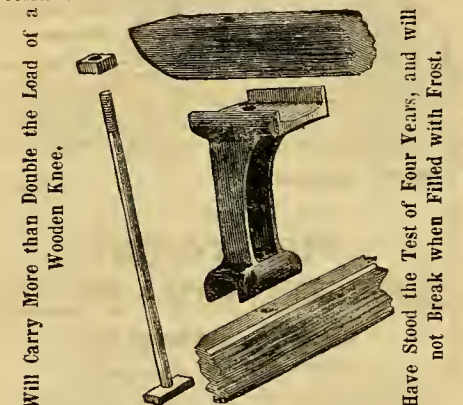
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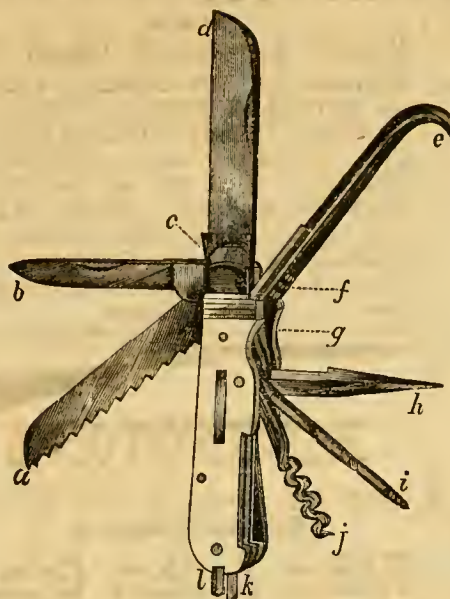
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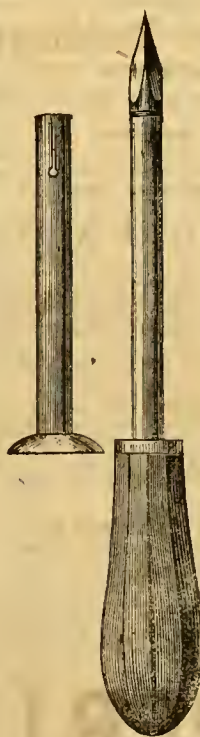
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